



June 2000  
Volume 68 No 6

# Amateur Radio

Showing  
Amateur Radio  
to the  
Community



Gil Sones VK3AUI

## **Technical Abstracts:**

Frequency Shifter  
for Fox Hunting  
Diode Matching

Crystal Sets  
Silent tuning

*plus*

**WIA, Divisional &  
Club News**  
ALARA  
& regular columns

Awards  
Contests

★ A Wire Log Periodic  
Dipole Array

★ Making Air Wound  
Transmitting Coils

★ Richard Cortis  
VK2XRC goes  
Up the Lazy River

★ Tracing the History of  
the WIA in WA



# WIA Yearbook 2000

***Callbook Listings  
Frequency Listings  
Band Plans  
Repeater Lists  
Beacon Lists  
Satellite Lists  
Licence Conditions  
Examiner Lists  
Special Interest Groups  
Public Relations Notes  
Radio and TV Freqs.  
and much, much more!***

2000 is a great year to have  
an up-to-date call book.  
This YEARBOOK edition  
contains all of the  
content you have come to  
expect of the WIA callbook  
as well as some  
new items

***It is more than a callbook, it's a Yearbook, the WIA Yearbook!***

***The "WIA Yearbook 2000" is now  
available from  
Divisional Bookshops  
and selected outlets***



# Amateur Radio

Volume 68  
Number 6  
June 2000

The Journal of the Wireless  
Institute of Australia  
ISSN 0002-6859

## Editorial

**Editor:** Colwyn Low VK5UE  
edarmag@chariot.net.au

**Technical Editor:** Peter Gibson\* VK3AZL

**Publications Committee Members**

Ron Fisher	VK3OM
Don Jackson	VK3DBB
Evan Jarman	VK3ANI
Bill Rice	VK3ABP
Gil Sones	VK3AUI

## Advertising

Mrs June Fox,  
Tel: (03) 9528 5962

### Hamads

"Hamads" Newsletters Unlimited  
29 Tanner Street, Richmond VIC 3121  
Fax: (03) 9428 4242  
e-mail: news@webtime.com.au

## Office

10/229 Balacava Road  
Caulfield, Victoria  
Telephone (03) 9528 5962  
Facsimile (03) 9523 8191

Business Hours 9:30am to 3:00pm weekdays

## Postal

P.O. Box 2175  
CAULFIELD JUNCTION  
VICTORIA 3161  
AUSTRALIA  
e-mail: armag@hotkey.net.au

## Production

Newsletters Unlimited (03) 9428 3458

### Printer

Streamline Press, Melbourne (03) 9417 2766

### Postal Service

IMS (03) 9291 5888

## Production Deadlines

Advertising booking and articles for publication 10<sup>th</sup> of proceeding month.  
Hamads and advertising material deadline 18<sup>th</sup> day of proceeding month  
The contents of Amateur Radio are Copyright Wireless Institute of Australia  
C 2000

## Our cover this month

MDRC at the St Kilda Hobby Show.  
Tony VK3JED and Tony VK3CAT  
(centre) adjusting rigs just before  
satellite pass. Terry VK3KBD looks on.

## General

WICEN (Vic) wears a proud feather .....	5
Many a Slip on the way to the true story. The initial years of the Wireless Institute of Australia (WA) .....	9
<i>D Handscomb VK6ATE</i>	
Forever YL. Ladies in Amateur Radio (Western Australian style) .....	12
<i>D Handscomb VK6ATE</i>	
Up The Lazy River .....	14
<i>Richard Cortis VK2XRC</i>	
Australia's first IARU conference: A time for decision making .....	24
<i>Jim Linton VK3PC</i>	

## Technical

Making "Air Wound" Transmitting Coils .....	6
<i>Drew Diamond VK3XU</i>	
A Wire Log Periodic Dipole Array .....	16
<i>Robert Hancock</i>	
Frequency Shifter for Fox Hunting (Technical Abstracts) .....	20
<i>Gil Sones VK3AUI</i>	
Diode Matching (Technical Abstracts) .....	20
<i>Gil Sones VK3AUI</i>	
Crystal Sets (Technical Abstracts) .....	21
<i>Gil Sones VK3AUI</i>	
Silent Tune (Technical Abstracts) .....	21
<i>Gil Sones VK3AUI</i>	
An AM/CW Transmitter for 1.8, 3.5 and 7 MHz (Concluded) .....	16
<i>Drew Diamond VK3XU</i>	

## Columns

Advertisers' Index .....	55	Education .....	23
ALARA .....	13	Hamads .....	55
AMSAT Australia .....	45	HF Predictions .....	52
Awards .....	36	New Members .....	2
Club News .....	18	Novice Notes .....	42
Contests .....	38	Repeater Link .....	50
DX Notes .....	26	Silent Key .....	2.35
WIA Division News		Spotlight on SWLing .....	51
VK1 Notes .....	31	Technical Abstracts .....	20
VK2 Notes .....	31	VHF/UHF - An Expanding World .....	47
VK3 Notes .....	32	WIA Comment .....	3
VK4 Notes .....	33	WIA News .....	3
VK7 Notes .....	34	WIA Division Directory .....	30
5/8 Wave .....	35	WIA Federal Directory .....	2
Editor's Comment .....	2		

### Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

### Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted, at \$4.00 each (including postage within Australia) to members.

### Photostat copies

When back issues are no longer available, photocopies of articles are available to members at \$2.50 each (plus an additional \$2 for each additional issue in which the article appears).

### Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

## Wireless Institute of Australia

The world's first and oldest  
National Radio Society  
Founded 1910

Representing  
The Australian Amateur Radio Service

Member of the  
International Amateur Radio Union

Registered Federal Office of the WIA

10/228 Balclutha Road  
Caulfield North VIC 3161

Tel: (03) 9528 5962 Fax: (03) 9523 8191  
http://www.wia.org.au

All mail to  
PO Box 2175 Caulfield Junction VIC 3161

Business hours: 9.30am-3pm weekdays

### Acting Federal Secretary

Peter Naish VK2BPN

### Federal Office staff

June Fox Bookkeeper  
Rita Trebilcock VK3JF Examinations Officer

### Council

President	Peter Naish	VK2BPN
VK1 Federal Councillor	Glenn Durstun	VK1XX
VK2 Federal Councillor	Michael Corbin	VK2YC
VK3 Federal Councillor	Brenda Edmonds	VK3KT
VK4 Federal Councillor	David Jones	VK4OF
VK5 Federal Councillor	David Box	VK5OV
VK6 Federal Councillor	Will McGhie	VK6JU
VK7 Federal Councillor	Phil Corby	VK7ZAX

### Executive

Peter Naish VK2BPN  
John Loftus VK4EMM

### Federal Coordinators

AMSAT	Graham Raillif	VK5AGR
ARDF	Jack Bramham	VK3WWW
Awards	John Kelleher	VK3DP
Contests	Ian Godsil	VK3DID
Education	Brenda Edmonds	VK3KT
FTAC	John Martin	VK3KWA
Historian	John Edmonds	VK3AFU
IARU	Grant Willis	VK5ZWI
Intruder Watch	Gordon Loveday	VK4KAL
ITU Conference and study group	Gilbert Hughes	VK1GH
QSL Manager (vks, vks)	Neil Penfold	VK6NE
Video tapes	Rick Division	
Web/PR	Richard Murrane	VK2SKY

### ACA Liaison Team

Peter Naish VK2BPN  
Glenn Durstun VK1XX  
Michael Corbin VK2YC  
Wally Howse VK6KZ  
Canberra Liaison Officer  
Richard Jenkins VK1RU

## EDITORS COMMENT

Colwyn VK5UE

# AR lives on...

Well I am still here. I am receiving input so Amateur Radio will live on.

I was told that the May editorial in QST was well worth reading. I found it most interesting. It was saying (to me) that real Hams were those who loved radio and all that came with it. A licence was not a necessity. Why some people get licences has changed and other forms of public communication have provided solutions to some peoples needs.

However real hams are still out there building equipment, operating equipment, developing new concepts, listening for DX, operating on Field Days, providing communications in emergencies. Then there is training to be able to respond to calls for communications, help in sporting events of all kinds, helping make JOTA or JOTI a success, teaching the courses to enable people to get licences at all ages. Helping fellow amateurs when

they have a job to do, which is beyond their capabilities, and more (I suppose there is more) is all part of being a real Ham.

Now that Morse testing for access to HF bands is no longer flavour of the month (though I know the discussion will continue), what should we be doing as Amateurs to improve our hobby? Please let me know.

In OTU I have had to edit some letters but I hope I am letting people know your concern. However there will be at most two pages for OTU so I hope to have so much material that I have to summarise some topics.

This month's ending: if you have a problem in Amateur Radio first talk to friends, then your local club, then your State Division, then if necessary test the wider waters with a letter to the Editor.

## New Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of MARCH 2000

L10176	MR S P O'NEILL	VK3FDT	MR D R TOMPKIN
L31551	MR G BEAUCHAMP	VK3FC	MR Y HASHIMOTO
L31552	MR T TRAYERS	VK3HCW	MR P RICHTER
VK1EL	MR L LAWLOR	VK3LSB	MR S BEMBRICK
VK2AAT	MR J HAZLEWOOD	VK4IK	MR H A WOODWARD
VK2BDR	MR D S RITCHINGS	VK5GH	MR W R G HOLMAN
VK2CT	MR S REEVES	VK5NTT	MR A D BECKMAN
VK2ZDD	MR C JONES	VK7ZPG	MR G P FRITH
VK3ADA	MR R ADAMS		

## Silent Keys

The WIA regrets to announce the recent passing of:-

I J BRYAN L20327	J L (JIM) TOBIAS VK3MMD
LJ BAILY L70134	G (Ronald) Clayton VK4BGC
E N NAPPER VK2FIN	L E HAUBER VK5EZ
C (Athol) Pritchard VK3CP	





Peter Naish, VK2BPN  
WIA Federal President.

## WIA policy prepared for IARU

The Annual Convention of the WIA Federal Council was held in Melbourne at the end of April. Most of the time was spent on the formulation of WIA Policy in preparation for the IARU Region 3 Meeting in Darwin later this year. It was an intensive but highly productive event and some important strategies were established. The Papers for presentation at the Darwin meeting have now been prepared in accordance with these policies. A special WIA web site has been set up to provide information on the IARU Region 3 meeting and it is proposed that access to the WIA papers will be made available soon through this site.

## Improved communication between WIA and Amateurs

Also at the Convention, time was set aside to review the possible reasons why many radio amateurs are not members of the WIA. Some useful thoughts were tabled and discussed. It was clear to the Council that the WIA needed to be more reactive to its members requirements and to provide a better understanding to all amateurs of what the WIA had achieved on their behalf. It also needed to inform them about how it was dealing with the many issues that concern the amateur radio service. Each of the Federal Councillors took back to their respective Divisions a determination to improve on the present situation and thereby encourage more amateurs to join and participate actively in the WIA.

## ACA reviews "news bulletins" regulations

The ACA recently reviewed the long-standing facility that allows regular news bulletins to be transmitted by WIA stations. It appears that there is no provision for them in the current Radio Communications Act. To resolve this anomaly the ACA propose to modify the amateur radio service Licence Condition Determination (LCD) to incorporate an appropriate additional statement. Details are expected shortly.

One matter that was brought to light by the ACA during their review was the practice by some Divisions of transmitting on behalf of members "sales and wanted advertisements". The transmission of advertisements by radio amateurs is strictly forbidden under the Radiocommunications Act. The ACA have therefore now requested that no such advertisements be carried in these news bulletins even though this may have been tolerated in the past.

It is unfortunate that this service has had to be curtailed but discussions with the ACA by the WIA have confirmed that the ACA are not able or willing to let the advertisements to be continued.

The regular transmission of news bulletins by authorized stations is a vital service to all radio enthusiasts and it is important that the ACA has now recognised them as such by their proposed LCD change.

ar

Prepared, researched and compiled by  
Richard Murnane VK2SKY, Federal News Coordinator

## Sydney Games Take Another Bite of 70cm 444 MHz ATV operations cease in Sydney basin

The Australian Communications Authority is to allow some Olympic Games radio services to access the 440-450 MHz segment of the 70cm Amateur band. This in addition to the 421-422 MHz and 424-432 MHz segments set aside last year. This new allocation is effective immediately and will continue until the conclusion of the Paralympics on 30 October 2000.

The ACA says, "Existing amateur services will be afforded the usual consideration in regard to interference protection at the time of licensing," with the exception of Amateur Television operations (ATV channel 2), which must cease operation immediately.

Games services will be operating on a primary basis in the band and, hence, receive interference protection from Amateur services.

### WIA Federal President Peter Naish comments:

This is not a withdrawal of this part of the band (apart from its use by TV operators) but notice that there will be authorised use by non-amateur stations that will be afforded primary status. Amateur licensees will be expected to cooperate to prevent interference to these Olympic operators.

The full text of the statement from the ACA can be found at <http://www.wia.org.au/BandPlans/OlympicsUHF.html#440-450 MHz>.

AMATEUR RADIO  
MOVIE TO OPEN  
IN AUGUST

## ...a Golden Opportunity to Promote Amateur Radio

We mentioned recently that one of Hollywood's latest offerings,

"Frequency" features Amateur Radio.

Peter Ellis VK1KEP tells us that Village Roadshow will release Frequency in Australia on 3rd August. Ok, so we get to see our hobby on the big screen, but will we sit by passively and let a golden opportunity slip by?

Amateur Radio operators across the United States have seized the opportunity to promote the hobby, approaching local cinemas to place advertisements for their clubs, and operating Amateur stations in the cinema lobbies. They are providing live demonstrations of HF and VHF voice operations, satellite operations, Amateur television and more.

The cinema managements have enthusiastically supported the Amateurs running the stations - it garners extra interest for the movie, of course - and the Amateurs stand to gain new members for their clubs and secure a better future for their hobby.

What will you be doing when Frequency arrives?

## "...And That's the News"

The Australian Communications Authority (ACA) is to modify the Amateur Station LCD to permit the transmission of bulletins of news and information services.

To avoid any conflict with the Broadcasting Services Act 1992, the proposed additional wording to be inserted into the LCD will be:

"The licensee may use an amateur station for the purposes of transmitting news and information services about amateur radio as a means of initiating intercommunication"

While there may be no actual 'intercommunication' as a result of the WIA's news and information services, as long as there is an intention that intercommunication could take place (and that we encourage it), that is enough.

To omit the 'intercommunication'

phrase runs the risk that your news services could be construed as open narrowcasting services as described in the Broadcasting Services Act.

WIA Federal President, Peter Naish VK2BPN comments, "Please note that the transmission would better be described as a 'Bulletin of News and Information Services' rather than a 'News Broadcast' to avoid confusion with the Broadcasting Act.

More importantly, the ACA has asked for confirmation that all "for sale announcements" have now ceased.

(via QNEWS)

## GPS Accuracy Improves

Automatic Position Reporting System (APRS) enthusiasts and users of Global Positioning Satellites (GPS) not only in Australia but globally will welcome a recent statement by the President of the United States to stop degrading GPS accuracy.

This decision became effective at midnight on 1st May, and means civilian users of GPS will be able to pinpoint locations up to ten times more accurately than they could before.

President Clinton said "We have demonstrated the capability to selectively deny GPS signals on a regional basis when national security is threatened.

Civilian users will realize a dramatic improvement in GPS accuracy. For example, emergency teams responding to a cry for help can now determine what side of the highway they must respond to, thereby saving precious minutes. This increase in accuracy will allow new GPS applications to emerge and continue to enhance the lives of people around the world.

From <http://www.whitehouse.gov/library/PressReleases.cgi> and <http://www.igeb.gov/> via QNEWS

## The International Telecommunications Union WRC 2000

The ITU is holding a World Radiocommunications Conference in Istanbul in May-June 2000. Over 2000 delegates from 140 countries are expected to attend.

The object of this conference is to amend the International Radio Regulations, which have the status of a treaty between nations.

The International Radio Regulations cover Frequency Allocations, Technical Standards and Operational Regulations

Amateurs will be affected by decisions in the following areas:

1. The revision of the already set spurious emissions limits. This will affect the design and use of amateur transmitters, as any increase in the stringency will make it more difficult for amateurs to comply using their current equipment. It is also hoped to align the spurious requirements for amateurs using satellites with the general level for amateur stations which is less stringent than earth stations in satellite services. This is particularly important for amateurs using satellites who use the same transmitters for non-satellite work
2. A move to introduce Synthetic

Aperture Radars belonging to Earth Exploration Satellite Service in 430-440 MHz band. We know this will cause interference to amateurs. The object of this radar is to study tropical forests.

3. Proposals looking at additional frequencies for a further GPS system called Galileo. Some are looking at the 23cm band and this could add an undesirable sharing companion that could make things difficult for amateur microwave enthusiasts.
4. 71 GHz and up. Although amateurs use these bands very infrequently at present, the wrong decisions could impair their future usefulness to the amateur services.
5. Additional frequencies for the mobile satellite service. A number of countries are looking hard at frequencies between 100 and 1000 MHz. Unsubstantiated claims are made as to their sharing ability.
6. Additional bands for IMT2000. This is the next generation of mobile services and does not confine itself to voice. Some countries have amongst

their target bands 2300-2450 MHz.

7. Discussion of the spectrum around 7MHz where at the moment the matter of harmonization between the HF broadcasters and amateurs is on the agenda for the next conference. The IARU policy is to seek a world wide 300 kHz allocation
  8. The amateur article in the Radio Regulations S25 will be discussed in relation to its maintenance on the agenda for the next conference. It is of course this article that contains the reference to the Morse Code qualification requirement. There are a number of other amendments to this article that are contained in the IARU FASC report which have been adopted by the regional organizations
- The WIA ITU Conference and Study Group Coordinator, David Wardlaw VK3ADW, has worked on the ACA committee preparing for WRC 2000 in order to make sure the amateur position on all these issues is recognized and receives the support that it should. The WIA work was greatly helped by the vast amount of work done internationally by the IARU

# WICEN (Vic) wears a proud feather



## Minister for Police and Emergency Services

21 June 2000

Mr G Cornell  
State President  
Wireless Institute Civil Emergency Network  
P O Box 106  
MITCHAM VIC 3132

55 St Andrews Place  
Melbourne, Victoria 3002  
GPO BOX 4356QQ  
Melbourne, Victoria 3001  
DX 210077  
Telephone: (03) 9651 6900  
Facsimile: (03) 9651 6910

Dear Mr Cornell

### VICTORIAN UNIT MERITORIOUS SERVICE AWARD

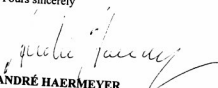
It is with pleasure that I write to inform you that I have decided to confer the Victorian Unit Meritorious Service Award upon the Wireless Institute Civil Emergency Network (WICEN) for its involvement in designing, installing and operating a communications network to provide contingency communications for emergency response co-ordination leading up to the year 2000.

The award also recognises the significant ongoing contribution of WICEN to emergency management in Victoria.

I am proud to confer this Award, on the basis of the recommendations put before me.

It will be my pleasure to present this Award to WICEN and would be pleased if you could contact Ms Diane Sainato of my office to make arrangements for a suitable date.

Yours sincerely

  
**ANDRÉ HAERMEYER**  
Minister for Police and Emergency Services



WICEN (Vic) Inc Executive receives the presentation from the Minister

# Making "Air-Wound" Transmitting Coils

Drew Diamond, VK3XU  
45 Gatters Rd.,  
Wonga Park, 3115

In applications such as antenna couplers and power amplifiers, where substantial amounts of power are involved, the most popular coil type would probably be "air-wound". That name seems to be applied to any skeletal coil whose turns are supported by insulated ribs, or a single sheet of (say) perspex, rather than a tubular former. Quality (Q) is significantly improved by having a minimum of supporting material in direct contact with the coil wire. And the air-wound style permits easier tap connections to be made to individual turns.

Unfortunately, sources of "Air-Dux" (TM) and "B&W" (TM) coils of appropriate size have just about dried up. Which is frustrating, because amateurs like to make their own linear amplifiers and antenna couplers. For larger coils of perhaps 10 turns of 12 gauge wire, such as used for the popular "Z-match" couplers, a perspex rectangle may be drilled with a series of holes to accommodate the helix. The coil is

wound onto a slightly undersized mandrel, then removed, and threaded or "screwed" onto the former as described in Ref. 1. However, when a larger inductance involving tens of turns is required, this technique is rather awkward, and the results can be below expectation.

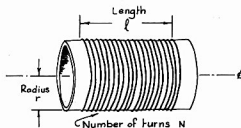
A method of making air-wound coils was described by the writer some 6 years ago (Ref. 2). Having given talks and demonstrations at local radio clubs, it was found that coil winding is rather a hot topic, and so a revision is perhaps timely.

example: coil of radius 1.25 inches,  
27 turns, winding length 3.5 inches.

$$L_{\mu H} = \frac{27^2 \times 1.25^2}{(9 \times 1.25) + (10 \times 3.5)}$$

$$= \frac{1139.06}{46.25}$$

$$= 24.63 \mu H \text{ rounded to } 25 \mu H$$



$$L(\mu H) = \frac{N^2 r^2}{9r + 10l} \quad \text{or} \quad = \frac{N^2 r^2}{25.4(9r + 10l)}$$

where:  $r$  = radius of coil (in inches) or (in mm)

$l$  = length of coil (in inches) or (in mm)

$N$  = number of turns

and:

$$N(\text{turns}) = \sqrt{\frac{L_{\mu H} (9r + 10l)}{r^2}} \quad (\text{inches}) \quad = \quad \sqrt{\frac{25.4 L_{\mu H} (9r + 10l)}{r^2}} \quad (\text{mm})$$

Figure 1

Figure 1 shows an accepted, and reasonably accurate method of calculating the inductance obtained for a given number of turns, and conversely, the number of turns required to yield a specific inductance. The formulas hold for solenoids of reasonable dimensions, wire size and winding pitch. The very excellent Ref. 3 gives some useful tips for HF radio coils:

- (a)  $Q$  at any frequency within a band, and the frequency for maximum  $Q$  both increase with an increase in wire size for a given coil diameter.
- (b)  $Q$  increases, and the frequency for maximum  $Q$  decreases with an increase in coil diameter for a given wire size, number of turns and number of turns per unit length.
- (c) Maximum  $Q$  is obtained with a spacing between adjacent turns which is slightly greater than the bare wire diameter, and, perhaps surprisingly-
- (d) No variation in  $Q$  is detectable between coils wound with bare wire, enamelled wire or silver-plated wire. Therefore, ordinary enamelled copper wire (e.c.w.), or plain or tinned wire is fine for air-wound coils. Unless it is done properly, silver-plating adds little benefit.

For the following approach, rather than have the turns running through holes, they are fixed upon a rack or comb cut into each edge of a rectangular former of perspex (polycarbonate, or other low-loss material, about 1/8" thickness). In this example we see the construction of two coils of 27 turns of #18 B&S (1.3 mm) e.c.w. 2.5 inches diameter and 3.5 inches winding length for a "swinging-link" antenna coupler project (I'm using inches here because the inductance calculation is simpler, and there is less chance of error when marking out the rack on the former).

**PREPARE** a rectangle of perspex which is about 1/4-inch wider than the mandrel described in the next paragraph. The winding pitch is to be 8 t.p.i., so a slot every 1/8" is required. Using a rule with 1/8-inch graduations, carefully mark with a sharp scriber where each slot is to be. Remember to off-set the opposite rack by exactly half this amount- 1/16-inch. With the rack marked out, fix the perspex between soft jaws in your bench vice. Using a rod-saw (Abraflex [TM] or similar), or two ordinary hack-saw blades fitted into a hack-saw frame, cut your rack to about 1/8" depth for each slot. A finished former is shown in Photo 1. If you plan to turn out a number of identical coils, consider making a template of brass or steel sheet, which is clamped with the perspex in the vice and the rack cut accordingly.

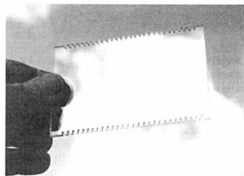


Photo 1: "Perspex" former

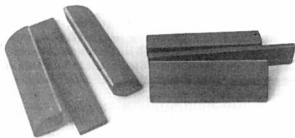


Photo 2:: Mandrel Assembly

**THE COIL** is wound onto the former with the help of a wood mandrel, whose components are shown in Photo 2. The flat piece is a removable "slip-stick" which allows collapse of the mandrel after winding. Obtain some suitably sized "quad" timber. That shown is described as "30 mm Tasoak quad", which, when made into a cylinder together with former and slip-sticks produces a coil of about 2.5 inches diameter. The quads should be just a bit longer than your former. The slip-stick is made from ply or similar material, about 1/8" thickness and about 1 inch longer than the quads. Plane a slight bevel onto each edge of the four quads, then rub some linseed oil into the mandrel components to ease their removal after the coil is wound on.

**ASSEMBLE** the former and mandrel with slip-sticks protruding as shown in Photo 3. Wrap some masking tape around the circumference to keep the assembly intact and permit the winding to begin. Calculate or estimate the

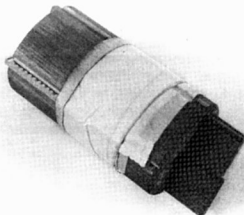


Photo 3: Ready to wind

*Continued on page 8*

length of wire required for the winding ( $3.14 \times$  diameter  $\times$  number of turns) then run out your wire and anchor one end. Give the wire a firm pull to remove any small wrinkles. Fix the wire start into the first slot with a bit to spare, and put a bend in the wire right there to hold it in place. Take care not to snap off the first tooth. Whilst keeping the wire taut, carefully rotate the assembly as you walk towards the anchor. Each turn must lie down evenly into each slot, as depicted in Photo 4. The first half-dozen turns will have sufficient holding power to allow the masking tape to be removed and winding completed.

With the winding done, put a bend in the wire similar to the start, then snip with some spare. Leave the mandrel in place. Mix up some two-part epoxy cement and carefully apply a bead along each rack where the turns lie, taking care not to get any on the quads (hence the bevel). Position the assembly vertically so that excess cement runs down the racks and drips off the end. When the epoxy has set, grip each slip-stick with bull-nose pliers and withdraw them, which allows the quads to collapse, leaving the coil intact. The 25 microHenry coils so made for the coupler project are shown in Photo 5.

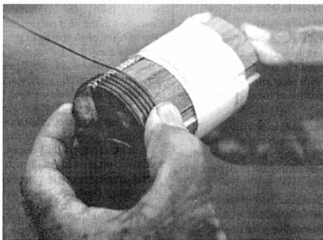


Photo 4: Winding the coil

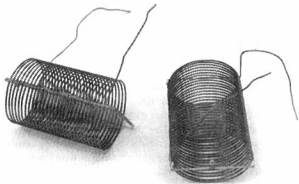


Photo 5: Completed coils

## References and Further Reading:

- (1). Radio Communication Handbook (RSGB), 4th edition, P13.36.
- (2). "Making Air-Wound Coils for HF"; Diamond, AR Feb. '94.
- (3). Radiotron Designer's Handbook; F. Langford-Smith (AWA), 6th edition.
- (4). "Low-Loss Low-Cost Transmitting Coils; Muldoon, W1FRQ, QST Dec. '34.
- (5). "Constructing Air-Wound Coils"; Johnson, W7KBE, HR Aug. '84.

ar

We manufacture a comprehensive range of HF, VHF and UHF antennas, baluns, power dividers, etc. to suit your application. Some of our log periodics provide continuous coverage from 13-30 MHz including WARC frequencies and replace outdated tribanders. Now in use in 48 overseas countries.

FREE CATALOGUE AVAILABLE FROM



**ATN ANTENNAS** PTY LTD  
A.C.N. 067 557 634

- Create rotators, coax cables & non-conducting guy & halyard materials
- Hard-drawn copper antenna wire
- Insulators for DIY projects
- Inverted vee kits 160-30m
- High gain VHF & UHF amateur, scanning & TV Antennas

- High Sierra HF mobile antennas
- Butt section triangular aluminium towers for fixed or tilt-over applications
- Selection of power chips & TX tubes
- Diamond VSWR/PWR meters to 1300 MHz & accessories

**37 Morrison Street**  
**PO Box 80, Birchip Vic, 3483**  
**Ph: (03) 5492 2224**  
**Fax: (03) 5492 2666**

# Many a slip on the way to the true story

## The Initial Years of the Wireless Institute of Australia (WA)

*Follow not blindly the path indicated by others, for verily thou might find thyself in the garden of Historical inaccuracy*

D. Handscomb, VK6ATE,  
P.O. Box 39, Quinns Rocks, W.A. 6030,  
Ph: (09) 9305 7297

The Editor, *Amateur Radio*

Dear Sir,

### Greetings from VK6

I note with interest the photograph on Page 39 of October 1999 *Amateur Radio*. The photo in question was sent by Will McGhie, and purported to be of the 1927 Annual Dinner of the WIA WA Division. (The WIA [WA] minutes do not mention a Dinner in 1927!). So, as they say in the song: "It just aint so".

The WA Division of the Institute had about 100 members, although the minutes do not record the fact. I have another copy of the same photo. On the reverse of 'mine' is pencilled:

"Annual Convention Dinner Of The Wireless Institute Of Australia

"Keogh's Hall, Newcastle Street.

"2nd Convention, but 10th Dinner."

An added note indicates that this was held on Monday August 10th 1925 and refers the searcher to *The Western Wireless* of August 5th 1925!

The photograph was given me by Ross Greenaway VK6DA (SK) who in turn was given it (and others) by Jack Park, at the time of this photo 6BB-later to become A6BB/OA6BB and finally, from 1929, VK6BB.

According to the Minutes of the WIA (WA Division), Mrs. Keogh was asked to provide a cold meat meal for the price of 4/-

You may be aware that, for some time, I have been researching the History of the WA Division of the Institute. The time taken has been necessarily SLOW (painfully so at times) because of little

help, and little time, the necessary research being done in my limited spare time. I have included for your consideration to publish in hope that others may be able to help my endeavors

While the minutes of the Institute (WA) are of help, I find that many events, which today we would consider of importance, were either mentioned briefly in passing (either before or after the event) or not mentioned at all. Information has to be discovered in magazines or other sources of the times, of which there were several of WA origin, for example *The Western Weekly* (October 1923- 1927 (99 issues)) - for a time "The Official Organ of the Wireless Institute of Australia WA Division - also *Hoskins Weekly Western Australian*

## The history of the development of the WIA

In 1985, members of The Wireless Institute of Australia celebrated the 75th Anniversary of the organisation, both within the Commonwealth and around the world, because it was thought that the Wireless Institute of Australia began in 1910. But did it?

True, we should have celebrated the 75th Anniversary of the oldest Wireless Organisation in the British Empire, and second in the world. But not the anniversary of the WIA what we should have been celebrating was the 75<sup>th</sup> Anniversary of "The Wireless Institute of New South Wales."

Prior to the 1914—18 war, it is true that

there were Wireless Clubs in each State, for example, "The WA Radio Club" had its first meeting on September 15th 1913. About 6 months later it was decided to extend its scope, and its name was changed to: "The WA Institute of Radio and Scientific Experimenters" and there were similar "institutes" in other States. However, they were all individual

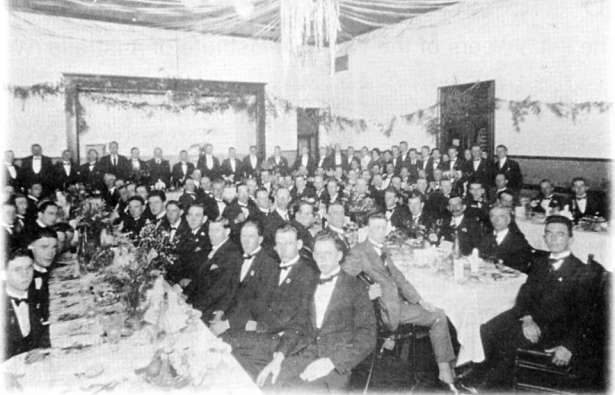
organisations, separated from each other geographically, what one might call "little fish each in their own little ponds". Communication by wireless would have been infrequent, and as for East-West communication, it was unheard of.

I had often wondered how members of the various Institutes got together - Did they meet during Military Service? The answer was provided among reading material sent me by a fellow "searcher of the truth"

At the first post-war meeting of The Wireless Institute of NSW. on January 7th 1919 (as recorded in *Sea, Land and Air* of February 1919) some 50 Members of the Wireless Institute of New South Wales assembled in one of the classrooms of the Marconi School of Wireless, Sydney.

*continued on page 10*

Photo as published  
in *Amateur Radio*,  
October, 1999



New caption: Annual Convention Dinner of The Wireless Institute of Australia.  
Monday, August 10th, 1925, at Keogh's Hall, Newcastle Street  
2nd Convention, BUT 10th Dinner

"Amid laughter, Mr Fisk, who had been invited to take the chair, asked that the minutes of the previous meeting be read (it had been held 4 years, 7 months previously) Mr Fisk then outlined his thoughts on the issue of Post-War experimental licences, and added, 'Another point which I might venture to suggest as advantageous to all concerned would be the amalgamation of every Wireless Institute in the Commonwealth: To form one united body of the whole, and to get together every man & woman interested in radio work. By this means, you would, in a few years, have a very powerful body representing the combined Wireless Institutes in Australia.'"

According to Mr Perry (the Convenor of the meeting) the main business was to form a small committee to interview the authorities with a view to getting back "our interned apparatus." Having

acknowledged that there were some influential people present, he suggested for the committee Messrs. Fisk, C.P. Bartholemew and C. Maclurcan. The resolution was proposed, seconded & carried. Mr Maclurcan then moved that "It be an instruction to the Committee to approach interstate Institutes and obtain their views on the subject of combining action, and to send them copies of the Chairman's address."

A meeting of the WA Institute of Radio & Scientific Experimenters was called by Professor A.D. Ross for October 28th 1919 at The Perth University: (Did it take the Wireless Institute so long to write to "The West": was it only then that there were sufficient returned from Military Service: or was there some other reason?) That meeting was cancelled, but at the First Post-War meeting (also held at the University) on November 3rd 1919, Mr R.

Thomson Snr. moved that the name be changed to "The Wireless Institute Of Australia (WA Section)" - in conformity with similar institutions in the Eastern States The motion was seconded by Mr. H. McKail, and carried!

### They were still a little fish, but in a much larger pond

Although The WIA Book Vol.1 records that two days later (November 5) New South Wales also changed its name: it was some time before ALL States did so. A series of short lists obtained from Commonwealth Archives (August/ September 1920) indicates issue of Experimental Licences (as opposed to *Permits* as had previously been the case) and some were allowed to both Transmit AND Receive.

Although there was no mention of Western Australians or indeed. New



South Welshmen the following are of interest:

- No.214 University of Melbourne. (Transmit & Receive) Callsign V214
- No.240 Wireless Institute Of Victoria (Transmit & Receive) Callsign V240
- No.250 Wireless Institute of Australia (Transmit & Receive) Callsign Q250- (Queensland Section)

So, presumably, The Wireless Institute of Victoria had not yet (August 1920) changed its name "in conformity with similar institutions". Indeed, "The WIA Book Vol. 1. records (page 28) that in June 1923, The Tasmanian Division of the WIA was formed. (The Launceston Branch to be formed in August 1923)

This would have been the last division of the Institute to be formed, although a number of sub-divisions would be formed later, for example the Albany subdivision of the Western Australia Division.

ar

Any opinions expressed during this article are solely those of the author

See next page for history of Ladies in the WIA

# Andrews

## Communications Systems

(EST.1976 - ACN 001 968 752)



# ALINCO

AUSTRALIA'S FIRST AUTHORISED FACTORY DIRECT IMPORTER

MASSIVE SHIPMENTS EVERY MONTH

FULL 3-YEAR WARRANTY ON

# ALINCO and ICOM

WE SELL MOST BRANDS

BALUNS, VERTICALS, YAGIS, P.S. ICOM-KENWOOD-JRC-AOR-EMOTATOR-MFJ-DIAMOND-TIMEWAVE-KANTRONICS -THP - GARMIN - TERLIN - UNIDEN -ETC

DX-1600 HF LINEARS FROM \$ 3,799

# HUGE RANGE OF ELECTRONICS, ICOM and ALINCO Radios.

Over 22 Years of Professional Sales and Service. Instant Repairs Fridays

HF Transceivers & Linears Wanted

**(02) 9636 9060** or (02) 9688 4301

SHOP 8, 41 BATHURST ST, GREYSTANES, N.S.W. 2145. FAX (02) 9688 1995

### Delegates to Convention.

CHAIRMAN:  
Mr. B. M. Holt.

New South Wales	Mr. H. A. Stowe
Victoria	Mr. B. Jernyn Masters
Tasmania	Mr. P. Oakley Fysh
South Australia	Mr. Clement E. Ames
Queensland	Mr. W. Phillips, Esq.
West Australia	Mr. H. A. Stowe
	Mr. W. E. Carson
	Mr. A. E. Stevens


PUBLICITY OFFICER:  
Mr. F. H. Goldsmith

HON. SECRETARY:  
Mr. J. C. W. Park

ENTERTAINMENT COMMITTEE:  
Mr. B. M. Holt (Chairman)  
Mr. J. C. W. Park (Hon. Secretary)  
Mr. F. H. Goldsmith (Hon. Treasurer)  
Messrs. A. E. Stevens, S. E. Bottrell, W. Phillips

"Happy we have met, happy we have been,  
Happy may we part, and split meet again."

PRINTED BY THE PROPRIETOR "WESTERN WIRELESS"  
400 MARKET, PERTH, W.A.



## The Wireless Institute of Australia

*Robert Stephenson*  
Second

# Annual Convention

PERTH, W.A. 1925

Dinner held in honour of the Visiting Delegates  
Rough's Hall, Perth  
AUGUST 10TH, 1925

CHAIRMAN:  
B. M. HOLT, Esq., M.I.E.S., I.E.C.  
(PRESIDENT W.A. Division)

Part of the programme provided for Delegates and other participants at the Dinner of The 2nd Annual Convention of the Wireless Institute of Australia Above: Signatures of visiting Delegates. Below: Speakers were many and varied

### Toast List

"How much my comfort is revived by this."  
— Romeo and Juliet

**The Ring**  
"A Prince most prudent and of excellent judgment."  
Proposed by the Chairman.

**Parliament**  
"For avarice, if government be lost, I feel content  
Whate'er is best administered is best." — Pope  
Proposed by G. F. a. caption, Esq.  
Responded to by The Hon. Alex. MacCallum, M.L.A.  
Minister for Works.

**The Institute and Allied Societies and Associations**  
"Venerable men, may venture more  
And little else should keep near shore."  
— Benjamin Franklin  
Proposed by J. Thompson, Esq.  
Gen. Mgr. Western Australian Ltd.  
Responded to by the Chairman.

**Our Guests—The Visiting Delegates**  
"We thought good manners bound us to invite,  
Our worthiest friends to be our guests to-night."  
Proposed by F. Kennedy, Esq.  
Responded to by H. A. Stowe, Esq.;  
G. Ames, Esq.; B. Jernyn Masters, Esq.;  
and P. Oakley Fysh, Esq.

### 6 W I F

"This was the noblest Roman of them all."  
— Julius Caesar.  
Proposed by F. H. Goldsmith, Esq.  
Responded to by W. E. Carson, Esq.

**The Press**  
"Hark! shall the Press the people's right maintain,  
Unswayed by influence and unbiassed by gain."  
— Joseph Murray.  
Proposed by A. E. Stevens, Esq.  
Responded to by F. H. Goldsmith, Esq.;  
H. J. Barclay, Esq.

**The Artists**  
"I thank you for your voices, thank you."  
— Your most sweet voices."  
— Coriolanus.  
Proposed by W. Phillips, Esq.  
Responded to by W. Savage, Esq.

**The Entertainment Committee**  
"If there had been fortune, it had been a man  
In our den."  
Proposed by A. E. Grey, Esq.  
Responded to by S. E. Bottrell, Esq.

## Ladies In Amateur Radio (Western Australian Style)

Although Experimental Wireless/Amateur Radio has always been a male-dominated hobby, there has occasionally been invasions from "the fair sex", however successful or lasting.

Soon after the WA Radio Club was founded, (September 1913) it was decided to advertise for "Correspondence" members who were interested in the "new art & science" of wireless, but were unable to attend meetings because of distance. In April 1914, an application was received from a "Mrs Pym" on Rottnest Island. Was she WA's first "YL" (Lady Operator)? Designated a "Country Member" her subscription fee was 2/6 per annum (25c.) as compared with 5/- for attending members.

During the years of World War I membership fees were suspended, so it is not known if she maintained her membership; her name was not recorded. By October 1923, "L. Pym" of Rottnest had a Receiving Licence, with the Callsign 6AW. Also in the list of October 1923 appears, with a "Receive only" licence, Callsign 6BF, Miss C. Stevens of The District High School, Bunbury. A patient, in my care, told me that he went to school in Bunbury at that time. Miss Stevens, known as "Ghosty" Stevens because of the way she used to flit around the corridors, was the Science Teacher. She kept her receiver in the Laboratory, and would "keep back" achievers to allow them to listen to the only Broadcast Station in WA at that time, 6WF, which was owned by Westralian Farmers. (If they were allowed to receive only, why did they need callsigns?) Miss Stevens obviously had an Experimenters' Permit, but did she carry out experiments with wireless circuits, or was she what today we would call "a Listener"?

But what was there to listen to before June 4th 1924? There would have been only Shipping, Coastal Radio Station VIP and perhaps a few experimental Transmitters in and near Perth. There was no broadcasting in WA. 6WF came on the air as the first broadcast station in June 1924. It was one of the first 4 stations,

later to become "A" Class Stations, which meant, for the first few months, a "sealed Set" station, transmitting on 1250 metres.

During the 1920s, various Radio Clubs and Societies sprung up throughout the Perth Metropolitan area and the "near" country districts. Several times it is recorded that "the company was graced by members of the fair sex" or words to that effect, but it was obviously not considered necessary to record their names.

The advent of the AOPC (Amateur Operator's Proficiency Certificate) in 1925, shows that, even if still interested, YLs had opted for a "Listener's Licence". By now *broadcasting* had arrived, more interesting than experimental work, except for the most dedicated.

In July or August 1931, Miss A. (Gypsy) Jones wrote asking how to join the Wireless Institute. It was agreed that the information be supplied to her, and also that Miss Faraday be advised that "we have an application from another lady member". Who was Miss Faraday? There is no mention of her or her application for membership in either previous or later minutes.

At the General Meeting of 19th November 1931, the following were appointed Operators and Program Managers for (VK)6WI:

December 6<sup>th</sup> VK6RX & Miss Jones.

Regrettably, nothing further is recorded of either

In April 1936, Ruth Victoria Longley was accepted as a Student Member of the Institute, and at the Annual General Meeting (June 11th) of 1936, was appointed Bulletin Editor. This didn't last long. Four months later "it was decided with regret to accept her resignation as Bulletin Editress", and an appreciation of her service be recorded in the Minutes". But her interest in Radio was to remain, as did her membership of the

Institute. At the General Meeting of April 12th 1938 with the Callsign VK6YL. Miss Longley volunteered as a Morse Instructor for the institute. She was the first "YL" to attend an Annual Dinner of the Institute (1938 and '39)

It was not until 1939, just before the outbreak of World War 2, that the first "YLs" in W.A. appeared in a list of Callsigns - they were:

VK6JC - Chinnery, Miss, Charlie's Creek, via Donnybrook

VK6MH - Hill, Mrs, 33 Trenton Street, Wiluna

VK6YI - Longley, Miss, 7 Cuthbert Street, Shenton Park.

Jess Chinnery (previously of John St Welshpool) would have gained her AOPC some time before July 1937. Originally working on the 7MC band, she later graduated to 14MC CW. In 1939, Harry Atkinson VK6WZ, then VK6 correspondent to *Amateur Radio* reported that "She had found the Creek, but of Charlie there was no sign"

These then were the pioneer Ladies of Radio in Western Australia.

Like all other Amateurs, the "YL's" radio activities were to be halted during WW2, and when at last licences were re-issued, Ruth Longley's name appeared in the Post-War Callbook, but only once. She gave up her licence. The Callsign VK6YL was later taken by Mrs. A. Cowles of Subiaco, later by Gill Weaver.

Of Jess Chinnery, nothing more was recorded. (Did she ever find Charlie?)

The Callsign has since been allocated several times: by 1957 to B.J. Coles of Perth and later to J. McCluskey, to name but two. Bobbie Hill VK6MH (with OM VK6AH) moved to Busselton, where she became SK in 1988.

Many more Ladies were to follow, especially with the introduction of the "Novice" Licence in 1976. But that's part of another story...



Christine Taylor VK5CTY, ALARA Publicity Officer  
 16 Fairmont Avenue, Black Forest SA 5003  
 Packet: VK5CTY@VK5TTY email:geensee@picknowl.com.au

# Net-working for winter nights

## Congratulations

Bev VK4NBC was very surprised to have several people insisting that she attend the AGM of the VK4 Division, recently. She discovered why when she was presented with an Award of Merit for her outstanding effort, in particular in arranging the ALARAMEET in Brisbane last September. She had made all the arrangements almost unassisted and under very difficult conditions as the health of her OM Graham was a constant worry.

The Award was very well earned. In addition to the ALARAMEET she has also participated in many contests (with some success) including the ALARA Contest in which she won the Florence McKenzie section three times in four years. She has run a number of nets and clubs associated with the RAAF group in which Graham served during the war. You will earn certificates to hang on your wall by winning contests but only if you work at it. You earn those certificates in a way those of us who don't bother with contests will never know.

Congratulations, Bev, from us all.

## The Monday Net on 3.80 MHz at 1000 UTC

Now that we are into winter and have left Daylight Saving Time behind us the regular Monday night Net is accessible to all the Australian states. As soon as Daylight Savings ended Poppy VK6YF was there. It is still early in the evening (or late in the afternoon) for her, so propagation is not marvellous, but we can hear her in all the eastern states quite well. After the contact drought of the summer we look forward to hearing of her activities.

The regular VK4 girls can now hear us most times. During the summer they faithfully call in, but often there are few stations they can hear properly, even though they often have readable signals

down South. Unfortunately there are some commercial stations north of them that cause interference when propagation is better, but they can often hear us through the noise. We do appreciate having Bev VK4NBC in Brisbane and Sally VK4SHE from Townsville, calling almost every week but we were surprised not to hear June VK4SJ recently.

June and OM Doug had a very hurried trip to G land for family reasons but they did have a couple of days visiting Margaret G0BMQ whom June sponsors and with whom they caught up on their previous trip across the world. June has been back on the Net again with news from the Sunshine Coast.

Another not-so-common participator who has been heard more often recently is Dot VK2DB. Dot often listens while she is downloading and transferring the VK2 broadcast (which she puts out on packet each week) but does not always join in. With improved propagation it is good to hear her voice.

YL and OM operators who are interested in working towards an ALARA Award will find it much easier during the winter. This award requires that you make at least 10 contacts with YLs and that the contacts include at least five Australian call areas. Why not have a go? The award is an attractive one to hang on your wall.

## The 222 Net

This international Net is run each Monday by Dave ZL1AMN on 14.222 MHz with the net starting at 0600 Zulu and call in at 0530 Zulu. Now that we are at the height of the sunspot cycle there will never be a better opportunity to make contact with YLs all round the world. Although it is primarily a YL net it is not restricted to them. OMs are welcome to participate and there are a number who do this regularly.

The VK girls most often heard include Dot VK2DB, June VK4SJ, Bev VK6DE, Maria VK5BMT with frequent visits by

Robyn VK3WX, Poppy VK6YF and more, plus as many ZL call stations. Why not listen in one Monday afternoon and hear for yourself?

On one afternoon recently the following overseas stations were heard, as reported by June. Elizabeth VE7YL, Margaret G0BMQ, Uni LG5LG, using a special call from the border of Norway and Sweden, Olga DJ0MCL and DJ6GS "Wally" from Germany. Lucia CT1YN from Portugal and an OM from Romania. Nely YO3BBM were heard clearly, while DL1RBW was mobile in NA land.

## Other YL Nets Available

There is a YL-DX Net run by Christine GM4YMM each Thursday on 14.243 MHz at 0500 UTC. A YL Activity Day is held on the 6th of each month using the frequencies 14.288, 21.288 and 28.588, just listen throughout the day for the call "CQ YL" you can be sure to have some interesting contacts.

Within Australia VK6 has two regular, weekly nets. On Mondays, after the national net (because of the time difference, this is more convenient for the VK6 stations), on 3.585 MHz at 1200 UTC, and on 21.188 on a Friday at 0400 UTC which is run by Bev VK6DE in Geraldton.

On the First Thursday of the month the District Radio Club in Queensland runs a net on 146.900 MHz at 1000 UTC and on 3.565 MHz at 1030 UTC.

OMs are welcome to join any of these nets though we ask that you wait till we have called everyone in and we have had our first round or so of contacts. If you want contacts for the ALARA Award we will be willing to give those to you, either on another frequency during the net time or immediately after the net finishes which is usually approximately an hour after it starts.

# Up The Lazy River

Richard Cortis VK2XRC  
4 Victory St. (PO Box 2126)  
Clovelly NSW 2031  
richard\_cortis@one.net.au



Top: Paddleboat *Liba Liba 3* on the Murray River.

Above: from left, Bill VK3SWD, Richard VK2XRC, Tony VK5ZAI

Some time in mid 1999 my wife and I decided to have a New Year houseboat holiday on the Murray River around Renmark, S.A. and we decided that we would drive over and back. It was a holiday for both of us, so I was allowed to take some radios and associated gear. This was no DX expedition but it was amazing just how much gear was needed to cover expected eventualities. My recent attendance in WICEN exercises meant that there was a certain amount of experience, which suggested that a fair bit of junk was necessary.

The car was OK as it already had 70cm, 2m and 6m FM installed. The gear for the houseboat was another matter, as I had no clear idea of dimensions and details for erecting antennas. I knew there would be a substantial twelve-volt house lighting battery separate from the engine starting battery. All I needed for power was a long heavy power cable of indeterminate length with alligator clips on one end for connection to the battery; easy.

As my aim was to operate ten metres FM, I made up a simple wire dipole with a balun and some RG213 coaxial cable.

Hopefully, the cable would be long enough. As a precaution I loaded some connectors and some more coax. I also packed an SWR meter and an old but trusty EAT300 tuner. For six metres I took my Diamond tri-band vertical, a quarter wavelength whip and associated hardware. The rigs used were an ancient Yaesu FT690 with an amplifier and an Icom IC706 (mark 1). I also had an Icom IC-T7A handheld and associated chargers and cables etc. All of this junk filled a plastic recycling bin and overflowed into the boot of the car. The gear in the bin in

the boat was much heavier, and took up much more space, than the rest of our luggage including the dozen bottles of wine.

For antenna support, I loaded an old fibreglass sailboard mast and an aluminium tube, which was also intended to support the Diamond tri-band antenna. For attachment to the boat I had a roll of cheap plastic rope and the inevitable roll of duct tape. The quarter wave whip for six metres was to be supported on one of those steel brackets used to hang antennae off bull-bars on those Toorak Tractors.

The sailboard mast was tied to the handrail along the starboard side and the aluminium tube was tied and duct taped to the post for the forward sun awning. The six-metre whip was attached to the other end of the sun awning using U-bolts. With a little bit of help from the tuner we were up and going on four bands, 70cm FM, 2m FM, 6m FM, 6m SSB, and 10m FM. Not DX expedition stuff but up and going for a bit of fun on holiday.

While my wife was sunning herself on the deck, I was motoring sedately along the Murray River at about five kilometres per hour (according to the GPS), microphone in one hand, beer in the other, steering with my toe and admiring the landscape. I even had a pretty girl sunning herself on the deck in front of me! What more could anyone ask of a holiday.

As I said earlier, this was a holiday, not a DX expedition so radios were turned off for conversations with my wife, for meals, for the afternoon siesta and in the evening. However, I did manage quite a few interesting contacts around Australia and overseas.

Motoring down the Murray River from Renmark towards Berri, I spoke to Andy, VK5LA on ten metres and later on the local two-metre repeater. When we arrived in Berri on New Years Eve, Andy came down to the boat for a visit and the usual look around and detailed assessment of the station set-up. It was too early in the morning so we restricted the celebrations to a couple of cans of lemonade. It helps to avoid dehydration.

We moved off when my wife returned from her walk in town and headed back upstream, a couple of kilometres above the village of Lyrup where we tied up to the bank in the best mooring site of the whole trip. Ignoring amateur radio, we

started the petrol (noisy) generator, opened a bottle of genuine French champagne and watched the fireworks on TV. As we were not far from Berri as the crow flies, we also had a good view of the Berri fireworks display.

We did not move the boat on New Years Day as it was such a nice spot. However, there were ten metre contacts in abundance. Only lunch, a walk by the river and the obligatory siesta interrupted my games.

Moving upstream, we spoke to Tony, VK5ZAI on two metres and met up with Tony and Bill VK3SWD on Tony's houseboat "Nooralie" which he built himself. It is like a four-bedroom townhouse with ground floor terraces and rooftop sundeck. It even had a separate room for the shack and was complete with 70cm and 2m Yagis for playing satellites from the boat. Tony is a satellite enthusiast, possibly even a fanatic. He provided the local ground station facilities so Andy Thomas could speak to his father in Adelaide from the Mir space station.

Tony was an interesting guy to meet so we did it again. A few days later, we had dinner at the Renmark Hotel with our wives. Lucky the boat was tied up to the riverbank just across the road from the pub. I also had the privilege to visit Tony's

home and be treated to a guided tour of his station. The home built but professional quality antenna rotator system and the console installation in the shack were amazing. Nothing like the tangled mess of wires and cables in my shack!

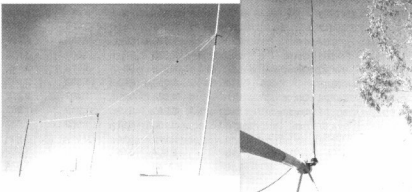
When it was time to come home I dismantled the antennas and masts etc and taped them up ready for the roof rack. It is funny that the gear that just fitted into the recycling bin on the way down seemed not to fit at all for the trip home.

About an hour or so south east of Mildura on the way home, I looked up and noticed that the antenna masts etc were not there. There was that immediate sinking feeling as I realised that they were still lying neatly taped together on the side deck of the houseboat *Liba Liba 3* about 300 kilometres back at Jane-Eliza Landing in Renmark. A quick mobile phone call to Tony VK5ZAI. I imagine he will make good use of his prizes.

Apart from a few contacts on six metres FM from the car and the usual repeater contacts, the trip home was uneventful. All I have to do now is scrounge some more portable antenna mast gear. Does anyone know of anyone who wants to get rid of an old sailboard mast or two?

ar

We did not move the boat on New Years Day... however, there were ten metre contacts in abundance. Only lunch, a walk by the river and the obligatory siesta interrupted my games



10m (left) and 6m (right) Antennae, *Liba Liba 3*

# A Wire Log Periodic Dipole Array

Robert Hancock  
30 Tottenham Court Road  
Port Elliot 5212

If you are looking for a HF antenna which has multi-band coverage with high gain, requires no retuning when switching bands nor any complicated feedline matching adjustments or ground radial systems. Then it would be hard to beat the log periodic system.

Military and commercial HF installations make extensive use of this type of antenna, and commercial models are available[1] which provide around 8-13dBi gain over the range 2-30MHz at SWR of less than 2.5:1.

As in all things, nothing this good comes without some disadvantages. The main ones are lack of rotational capability and the requirement for a large extent of real estate with two elevated supports. But depending on what is available a useful compromise can usually be reached. As I already had a vacant 35m by 16m block with a 10m mast behind my house, the LPDA was an attractive proposition. By running the antenna from one corner of the block to the mast I could aim the antenna along a bearing of 285°, which

would good coverage of the Middle East, North Africa, Europe and the Caribbean (long path).

The next step was to design an array which would fit into the space available. The first consideration was the minimum frequency to be covered. Some rough measurements on a scale diagram showed that the maximum length half element I could use would be around 12 metres, so 7MHz would be the practical lower frequency limit. The upper frequency limit was chosen to be 29MHz, this being the end of the 10m band for SSB operation.

Consulting the trusty ARRL Antenna Book [2], the section on log periodic design was thoroughly digested and transformed into an Excel spreadsheet so that the range

of design parameters could be quickly examined. the basic design process for a log periodic is to start with optimum values for the design constant  $t$  ( $\tau$ ) and spacing constant  $s$  ( $\sigma$ ), and calculate the resulting element lengths and spacing. The total length of the system is dependent on the design constants and the bandwidth. this is constrained by the maximum distance between the two support points. Some trial and error is therefore required in order to obtain the maximum gain within the physical space available. The final design I arrived at is shown in Table 1.

## LOG PERIODIC ARRAY DESIGN

F max.	29	*MHZ	ZT	5.357		
F min.	7	*MHZ	BOOM	34.806	metres	HALF
tau	0.857828	*INPUT	No. ELEM	13.690	SPACING	ELEMENT
sigma	0.134706	*	L1	21.429	S1	metres
alpha	14.78	degrees	L2	18.382	S2	10.714
APEX <	29.56	degrees	L3	15.769	S3	9.191
BW ar	1.6898638		L4	13.527	S4	7.884
Bs	7.0008642		L5	11.604	S5	6.763
EL. DIAM	0.67	mm	L6	9.954	S6	5.802
Ro	208	Ohms	L7	8.539	S7	4.977
Zav	698.72	Ohms	L8	7.325	S8	4.269
sigma1	0.15		L9	6.283	S9	3.662
Zo	267.92	Ohms	L10	5.390	S10	3.142
FEEDER	1	*mm	L11	4.624	S11	2.695
SPACING	4.67	mm	L12	3.966	S12	2.312
			L13	3.402	S13	1.983
			L14	2.919	S14	1.701
			L15	2.504	S15	1.459
			L16	2.2148	S16	1.252
						1.074
TOTAL			133.112		35.076	

Table 1

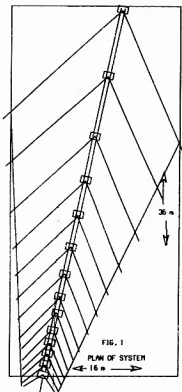


Figure 1

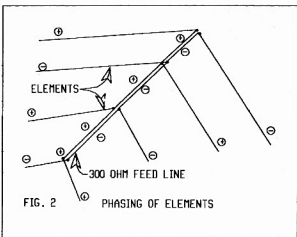


Figure 2

A further development in squeezing the maximum amount of antenna into the space available is to arrange the elements into a V shape rather than the straight line configuration [See figure 1]. the angle of the V is not critical but should probably not be less than about 85° for good performance and SWR. (The final angle in my installation was about 90°)

Construction of the antenna basically follows the procedures given in the ARRL Antenna Book [2]. The elements were made with insulated 0.07mm single strand copper wire. Since there is little strain on the wire on the element wires, relatively thin wire can be used. When it came to making the feedline, I simply used black 300W TV ribbon rather than constructing a twin-lead line at the calculated spacing of 407mm. The effect on the SWR of the system was not expected to be significant.

Insulator blocks at the feed point of each element were cut from 7mm thick polypropylene cutting boards, and the element wires were sealed to the blocks with hot melt glue. Alternative

elements must be connected to the feedline in reverse phase as shown in figure 2. At the forward (small) end of the antenna, a 4:1 balun was used to connect to the 50W coax from the transmitter. The entire feedline and insulator blocks were taped to a 36m length of UV resistant synthetic rope to support the weight of the antenna without straining the feedline.

At the outer ends of the elements, small blocks of propylene cutting board were used to attach the elements to the side spreader ropes. The ropes were supported at each end by 4 metre lengths of light wall galvanised tube secured to convenient fence posts. The blocks had holes drilled to allow them to slide along the rope after the ropes were tightened.

The fully assembled antenna was laid out on the ground and the central supporting rope was raised at each end. The side spreader ropes were tightened and the ends of the elements adjusted to remove slack and align each element in parallel with the others. The end blocks were then secured to the ropes with a small tie wire to prevent slippage in the wind.

## LPDA IMPEDANCE

### LOG PERIODIC DIPOLE ARRAY 7 - 30 MHz

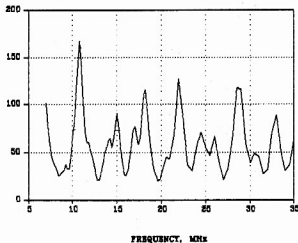


Figure 4

## LPDA SWR

### LOG PERIODIC DIPOLE ARRAY 7 - 30 MHz

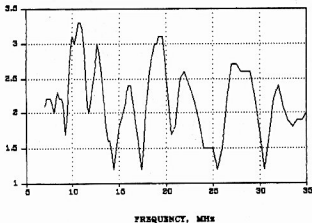


Figure 3

The SWR and impedance characteristics of the completed antenna as measured with an Autek RF-1 analyser as shown in figures 3 & 4. No adjustments were required at the antenna to obtain these results. As mentioned at the beginning, this antenna has a high gain (theoretical 5dB over a dipole), covers all frequencies from 7 to 29MHz, requires no tricky matching or tuning adjustments and no adjustments when changing bands. It does need a relatively large area in which to erect it and is not easily rotatable. Although if sufficient ground space is available even rotation would be possible! I will leave that to your imagination if you have the spare real estate

## References:-

- [1] Radio Frequency Systems WLP 230, WLP330, WLP 400
- [2] ARRL Antenna Book 18th edition section 10-1 to 10-9

Moorabbin & District Radio Club

## Amateur Radio PR in action —

Photos by Keith VK3JNB.

Peter Parker VK3YE, Publicity Officer  
Moorabbin & District Radio Club  
parkerp@alphalink.com.au (03) 9569 6751

In February 2000 the MDRC ran a stall promoting amateur radio at the St Kilda Hobby Show. As reported in April, the stall was successful, with many people seeing amateur radio for the first time. A highlight was the large number of satellite contacts made from the show. The pictorial spread shows the MDRC station at the show. We hope the pictures provide ideas for other clubs contemplating similar exhibitions.



The MDRC's table at the Hobby Show. On the table are: a computer, several transceivers, a scanner, ATUs and power supplies. We made sure we got a table near the hall's back door (not in picture) to allow easy passage of cables and people to the antennas outside.



It's important for people know who we are.

The use of a whiteboard and large 'Amateur Radio' banner helped here. The banner was made by taping letters made from pieces of insulating tape onto a linen cloth. The whole cloth was then spray painted and left to dry. The tape was peeled off to reveal the letters.



Keith VK3JNB's corner of the table. Shown is a TS-520S connected to operate as a Morse oscillator. Kids loved it!

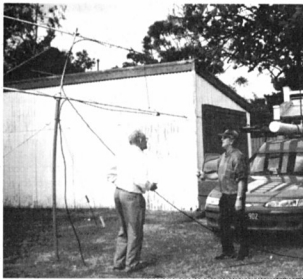


Tony VK3JED busily tunes 70 cm rig for a satellite pass. And they call this wire-less!

Terry VK3KBD (foreground) looks at satellite position on the computer while Tony VK3JED tunes the 70cm rig.



## MDRC at the St Kilda Hobby Show



Ken VK3CEA and Mal (SWL) adjusting the 2 metre and 70cm satellite antennas. Note that great height is not required for successful satellite operation.



Mal (SWL) and Ken VK3CEA adjusting the antennas during a satellite pass. In the foreground is Tony VK3CAT's 'CatMobile' movable antenna support. The thick pole above the left door is an 8-metre telescopic squid pole used to support the HF wire antenna.

### Adelaide Hills Amateur Radio Club

## AHARS reflects on its beginnings

The Club Historian, Lloyd VK5BR recently reprinted in the club magazine some highlights of the early activities of what became AHARS which could be of interest to the readers of AR.

"Whilst the AHARS commenced in that name in 1983, it seems that the members at that time felt they were creating a historic link with the Blackwood Radio Club which was established as the first radio club in S.A. The Blackwood club was formed by Owen Griffiths, Gordon Ragless VK5GR and Robert Ragless at the Griffiths' home in Young Street, Blackwood in 1923.

The club affiliated with the WIA in November 1924. It was granted a transmitting licence and first went on the air in August 1926. The transmissions were on 200 metres and the original call sign was A5BR. This became OA5BR in 1927 and VK5BR in 1929.

Transmissions on 200 metres were restricted to times when broadcast stations were off the air, Sunday

mornings and after 10pm in the evening. They included recorded music played from a phonograph acoustically coupled into a microphone although the club also had its own studio orchestra made up of its own members.

The club station later went on HF and operated on 32 metres around the period of 1928 to 1932 and on 80 metres around 1934 to 1935. It was first located at the Griffiths residences in Blackwood, first at Young Street and later Waite Street, then in 1934 to the home of Jack Perry in Clapham and finally in 1934 to the home of the Hume family in Parkside, the original location of Broadcast Station 5DN.

Similar to the activities of our present clubs, the Blackwood Club ran interesting

technical lectures, outside visits, picnics and field days including one via the SS Karatta to Kangaroo Island. It also published its own technical organ that it called "KEY-CLIX" and ran a monthly dance at the Eden Hills Parish Hall. It also held an annual radio concert at the Boys Club Hall in Blackwood.

The club ceased to be active around 1937, a little before the start of World War II."

I wonder if any of the other club now active also had such interesting beginning? There were certainly many more activities allowed in these early days that are not permitted now and others that are still just as actively pursued.

ar



# Crystal Sets

An interesting idea for a crystal set appeared in the Technical Topics column of Pat Hawker G3VA in *Rad Com* April 2000. The idea comes from Tony Harwood G4HHZ. The idea is to use a Pi network to match the diode detector to the antenna.

The circuit of the pi network crystal set is shown in Fig 3. The coils used were wound on 4 cm long ferrite rods. The winding is as required to tune the frequency of interest. The 1000 pF variable is two gangs of an old broadcast twin gang capacitor in parallel. The circuit (b) allows for Long Wave reception in Europe and provides a tapped MW coil, for optimum operation through the MW broadcast band.

Also discussed was the use of ex disposals low impedance headphones for crystal sets. These had been found to give good results and may be more plentiful than the high impedance headphones. High Impedance headphones were typically 2000 to 4000 Ohms impedance. The low impedance phones were usually of 300 to 600 Ohms impedance. Even modern 16 Ohm headphones had been tried with promising results.

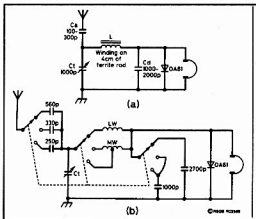


Fig 3. Pi Network Match Crystal Sets.

# Silent Tune

Silent tuning is a technique which allows tuning of an ATU without radiating full power. A dummy load is used to load the transceiver and a small fraction of the power is used with a resistive bridge to give an swr indication as the ATU is adjusted. The bridge is adjusted for a null and the rf used and radiated is 20 dB or more down on the full output.

A suitable circuit appeared in the Eurotek column of Erwin David G4LQI in *Rad Com* April 2000. The circuit is the work of Benny Aumala OH9NB and originally appeared in *CQ-QSO* December 1999.

The circuit is shown in Fig 5. The dummy load resistor is a thick film resistor which is bolted to a heatsink in order to dissipate the 100 watts of its

rating. The resistor coupling to the bridge is a similar resistor. The Farnell part numbers are 776-324 for the 68 Ohm 100 watt and 551-612 for the 330 Ohm 20 Watt. The RS number for the 68 Ohm 100 Watt is 225-1216. Other resistors can be used if they will do the job.

The bridge uses 0.6 watt 1% 51 Ohm carbon resistors which are readily available. Another way if you want a 50 match is to use parallel 100 Ohm resistors to give 50 Ohm bridge arms.

OH9NB used a diecast box to house the device and used the box as the load resistor heat sink. This is OK for short duration tuning but a heat sink would be advisable if tuning was extended. The case should not be allowed to become too hot to touch.

For a 50 microamp meter with a high swr giving full scale the meter will read 6 microamps for an swr of 1.2 : 1 and 10 microamps for an swr of 1.5 : 1.

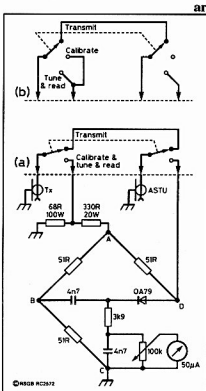


Fig 5. Silent Tune. (a) with DPDT toggle switch and (b) with 3 position switch to add a calibrate position.

# Erratum

In the item in April *Technical Abstracts* on the replacement of the finals in an FT200 an error crept into the wiring diagram. The corrected diagram appeared in April 2000 *Rad Com*. The correction came from Tony Hall G0MQG.

The corrected diagram is shown in Fig 4. The correction is a wire link between the two valve sockets joining the pins 1,4 and 6 of each valve together.

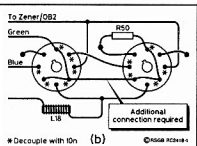


Fig 4. Corrected wiring diagram for 6146 replacement finals in an FT200.

# An AM/CW Transmitter for 1.8, 3.5, and 7 MHz

## (Concluded)

Drew Diamond VK3XU

The first part of this article appeared in *Amateur Radio* December 1999 on page 30. Due to ? the article was missing the final paragraphs. We apologise to the Author and those readers who have been waiting for the completion. I thank Drew for providing a copy of the text so that the final paragraphs could be printed. *Editor*

### Picking up at bottom of AR December 1999, page 32...

Transformer T1 is an Amidon FT50-43(A) core wound with 12 turns of #22 B&S (0.64 mm) enameled copper wire for the primary and 2 turns of hook-up wire for the secondary. T2 is wound with 11 bifilar loops of #24 (0.5 mm) wire thus; take two 300 mm lengths of #24 wire. Twist them together at one end, and fix that end in your vice. Clamp the free ends together in the chuck of a hand-drill. Whilst maintaining a firm tension on the pair, crank the drill until you have about 3 twists per 10 mm. Give the drill a firm tug to set the twist, then remove the pair. Wind the pair onto the toroidal core. Cut the leads to about 15 mm lead length. Remove the enamel from about 8 mm of each wire, then tin with solder. With your multimeter on ohms, identify the windings. Connect the end of one winding the start of the other. Winding starts are shown on the schematic with a dot. Transformer T3 is made in a similar manner to T2, using a pair of 350 mm lengths of #22 wire. If you cannot obtain an FT50-43(B) core for T3, use a stack of two FT50-43(A) cores.

The IRF510 must have an effective heatsink. A 12 x 20 mm rectangular hole in the PA board allows the device to be attached directly, using suitable insulating hardware, to the back panel, which serves as heatsink. Further heat dissipating capacity is provided by attaching a 72 x 110 mm heatsink (Jaycar HH-8566 or similar) to the rear panel. A hole must be provided in the heatsink to access the IRF510 mounting screw.

If just CW mode is required, delete the .386 and 2.2 microfarad capacitor. Connect a 3.3 k ohm 1/4 W resistor

between the "hot" end of the 2 k bias pot, and +12T rail.

The signal from the driver to PA is carried via a length of shielded wire. All connections between the IRF510, low-pass filters, relay and output coax socket must be as short as reasonably practicable, as shown in Photo 4. The 2-pole/3-position output filter wafer switch is mounted on a right-angle bracket adjacent to the filters, with an extension shaft to a knob on the front panel. Photo's 2 and 4 show the switch withdrawn from the mounting bracket. The change-over relay is placed close to, and between the Ant and RX sockets. The Ant. and RX connectors should not be of the same type.

### Adjustment and Operation

An oscilloscope, of sufficient bandwidth (at least 10 MHz, with X10 probe) would be very handy (but is not essential) in commissioning the transmitter. If it has been built in stages, as suggested, your power supply should be delivering 12 and 24 volt DC, and VXO/driver should be working satisfactorily. Check that the drive can be varied with the level control. Maximum output from the 2N3053 driver should be about 4 volt peak to peak (P-P) across 56 ohms. If this level is not obtained- find out why. Some typical P-P and DC voltages are shown at salient points in the circuit. Don't worry if the waveforms look a bit "fruity", that's why there is a low pass filter for each band at the output.

The PA is the stage where we have to be particularly careful. Check all wiring,

component placement and polarities again- perhaps after a break for a cuppa. Set the 2 k bias pot to minimum gate voltage. Connect a 50 ohm dummy load/ power meter to the Ant output connector via 50 ohm coax. Select CW mode. Remove any crystal from the VXO (we don't want a drive signal at present).

Close the transmit switch. Carefully adjust the bias pot until drain current flows, as indicated on the 0-3 A meter. Set the pot so that just a small amount flows- perhaps 100mA. Plug a suitable crystal (say 3580 kHz) into the VXO; set the LPF to the band corresponding to your crystal, then close the TX switch again. When the key line is grounded via a Morse key, the drain current should rise to about 1.5 A, and RF power should be indicated on the power meter. Adjust the level control, and check that CW power may be varied between about 12 and 20 W, with a corresponding variation in drain current from about 1.5 to 2 A. Listen to the CW signal on your station receiver. It should be clean, without clicks, chirps or ripple.

Plug in your radio microphone- a rocking armature, or similar dynamic type is recommended. Set the mike gain pot near maximum. Whilst speaking, adjust the drive level until the drain current meter flicks upwards- just a whisker. If you have an oscilloscope, check the modulated output waveform. Adjust both the mike gain and drive level so that you observe nicely rounded peaks, and the troughs just touch zero (that is; you have 100 % modulation).

No oscilloscope ? Don headphones and listen to the signal (on AM mode) on your

receiver. Adjust mike gain and drive for what you feel is best fidelity. Set drive level initially so that about half the maximum CW power in generated for each band, or about 1.5 A drain current. Switch the receiver to SSB mode, then tune around the signal whilst speaking, and check that the sidebands are not spreading excessively. Back-off the mike gain if there are too many "whiskers".

For best modulation characteristics on-air, the load presented to the transmitter's output (which, on CW is very tolerant of miss-match) must have a low SWR of less than about 1.5, even lower if you can manage it.

Some method of muting the receiver on

transmit may be necessary (for my own set-up, I simply turn the receiver's RF gain down so that the CW or AM can be directly monitored on headphones). If you want something better, perhaps a spare contact on the relay would serve to actuate the mute on your receiver.

When operating CW, set the drive to any level desired. A power output adjustment range of about 2 to 1 is typical.

A 3.58 MHz ceramic resonator may be fitted inside a defunct style "D" crystal case; using a gas flame, unsolder the top of the case to expose the crystal. Snip the fine wires attached to the pins, solder a new fine tinned wire to each pin, then attach the resonator. It was found that the

stability of the resonator is significantly improved by filling the case with petroleum jelly (thus increasing the thermal mass) before re-soldering.

## Parts

Most components are available from the familiar suppliers such as Altronics, Dick Smith and Jaycar. The BFR84 was a Dick Smith part. If unavailable, try for a near equivalent, such as MFE131, 3N201, 40673 or NTE 222- that have the same pin-outs. Power transformer may be DS M-1991 or Jaycar type 2165, or equivalent.

ar

## EDUCATION

Brenda M Edmonds V3KT  
PO Box 445  
BLACKBURN VIC 3130.

# Exam papers must reflect Regulations changes

Readers will be aware of the negotiations taking place between the WIA and the ACA with regard to the status of Morse code as a requirement for an amateur licence. As an interim measure, until the matter is discussed and decided at the International level, the ACA has agreed to allow full access to the HF bands for those amateurs who have passed the AOCP Theory and Morse code at 5 words per minute. It has also been agreed to continue examinations at 10 words per minute for those candidates who prefer it or who need the higher speed to gain reciprocal qualifications.

I do not intend to argue either for or against Morse code at any speed. My concern is that any change to the Regulations relating to the Amateur Service must be reflected in the questions appearing on the Regulations examination papers, and in the material available to candidates for their study.

Even such a simple change as this to the conditions of operation means that an amendment to the Licence Conditions Determination must be produced and gazetted. This inevitably takes time, so there is a time lag between the ACA agreeing, in principle, to a change and the change being implemented. This may be

a few weeks or much longer. All changes must be checked by the Legal Department of the ACA before the gazetting.

The upshot of all this is that candidates who are considering sitting for their Regulations examinations must be aware of the changes, and the Regulations examination question bank and papers must be amended to reflect the changed conditions. This also will take time. I cannot at this stage say how long, but by the time you read this the Examination Committee will be working on the revision of the Question Bank. It is hoped that the revised papers will be in place within a couple of months, but due notice

will be given when they are proposed to be released and used in examinations.

We can assume that changes to the LCDs will be reflected immediately in the LCD released on the ACA Web site. Please keep checking that site to see when the changes are gazetted. Be assured that these changes will not make the Regulations examination any harder. In fact, it may become easier as there will be much less distinction in privileges between Unrestricted and Intermediate licences.

All I can say at this time is:- Watch This Space!

ar

# Australia's first IARU conference

## A time for **DECISION MAKING**

By Jim Linton VK3PC

The 11th International Amateur Radio Union (IARU) Region III Conference being held in Darwin from August 28 to September 1, 2000, will be hosted by the Wireless Institute of Australia (WIA).

The IARU, now in its 75th year, is the unifying body for national radio societies, such as the WIA. It is structured in three regions, along the lines of the regions used by the International

Telecommunications Union (ITU) and defined in the International Radio Regulations (ITU-RR).

Region I is Europe, Africa and generally the area of the former Soviet Union, Region II is North and South America, and Region III is the rest of the world, covering the Asia and Pacific regions.

The IARU has an Administrative Council, made up of two directors from each IARU region, and they meet for two days annually, at the venue of an IARU regional conference - this year in Darwin.

Each member society contributes to the funding of the IARU, firstly to its region, and through it to the IARU International Secretariat.

IARU Region III President, Fred Johnson ZL2AMJ, speaking at this year's WIA Federal Convention explained how the American Radio Relay League (ARRL) had always provided the International Secretariat, an operation that costs around \$US200,000 a year.

That enormous contribution includes the right of the ARRL to select the IARU President, and Vice-President.

All WIA members contribute to the IARU through their WIA membership subscription. Additionally they have paid a \$2 levy this year to help fund the IARU Region III conference in Darwin.

The IARU Region III was founded in Sydney in April, 1968, with a meeting of representatives from the WIA, Japan Amateur Radio League (JARL), New Zealand Association of Radio Transmitters (NZART), Philippines Amateur Radio Association (PARA), and the IARU.

### First time in Australia

This year is the first time that IARU Region III conference has been held in Australia, and its deliberations will have an impact on Amateur Radio, not only throughout the region, but worldwide.

The WIA will be welcoming some 100 delegates from IARU member countries throughout Region III that includes much of Asia and the Pacific basin, plus observers from IARU Region I and Region II.

Invited guests include Australian and Northern Territory government officials.

...the sharing of information, and experiences, between radio societies at the IARU RIII conference will be of enormous benefit.

Not only will conference debate important issues facing the Amateur Service and make strategic policy decisions, but the event also affords an excellent opportunity to expose our hobby to government dignitaries.

The Darwin Amateur Radio Club (DARC) is providing "on-ground" help to ensure this conference is a success. A lot

of preparatory work has already been carried out by the club.

A special event station is planned to operate from the IARU RIII conference venue. It will be activated by DARC members, is to be available for accredited delegates, and demonstrate our hobby in action to visiting officials.

The last IARU Region III conference was held in Beijing in September 1997 and it considered more than 100 papers. This resulted in 47 resolutions, and each of those will be reported on at the Darwin conference.

Each IARU Region conference builds on the work of the previous conferences in each region, and is reviewed by the IARU Administrative Council.

The WIA Federal Convention in April decided on the make-up of the WIA delegation attend to the conference to be led by the Federal President, Peter Naish VK2BPN. Each WIA delegate has individual and collective team roles to ensure that the conference is a success.

## WIA papers proposed

The Federal Council also considered the available WIA papers, although some were still in draft stage, to be presented to the conference. They are expected to include:

- Report on the WIA's activities over the past three years. Harmonised 7MHz band - the WIA position
- Progress report on VK 80 metre DX window allocation. ADSL (a digital landline system) and its potential impact on the Amateur Service
- The Internet and Amateur Radio beyond 2000
- A proposal for a LF band for Region III
- Realignment of international microwave weak signal segments
- EMR (electromagnetic radiation) limits and its impact on the Amateur Service
- Decline of Amateur Radio (a follow-up report)
- Further input to the direction IARU is recommending for ITU-RR s.25. LIPD impact on 70 cm operation

These are just the proposed WIA papers, a further 90 papers are expected from other IARU RIII member societies.

## IARU vital to Amateurs

Fred Johnson ZL2AMJ said, "The work of the IARU is vital. Without frequencies the Amateur Service can't exist."

He said although the IARU operates on a voluntary basis, it has been effective in ensuring the interests of the Amateur Service are protected, at international conferences where big business seek spectrum.

"The IARU also enables radio amateurs worldwide (through their radio societies) to review their policies, and to formulate direction for the future development of Amateur Radio," said Fred ZL2AMJ.

"It is only by banding together, forming associations or societies such as the Wireless Institute of Australia, that we can collectively work together to retain what we have (frequencies), and work out policies to obtain what we would like to have."

He explained that the IARU has a unique position, and the Amateur Service view it puts forward at international conferences is highly respected.

Although the IARU does not have voting rights at World Radio-communication Conference (WRC) and other international meetings, it is regarded as a responsible body which thoroughly investigates problems and comes up with concerns and solutions.

WRC used to be held every 20 years. But with the rapid development of technology and its associated demands on spectrum, WRC are being held every three years.

There are also other conferences that related to radio, plus national preparatory conferences for each WRC.

Fred ZL2AMJ said, "This puts much more pressure on the IARU as it strives to establish policies and responses to WRC agenda items that may have an impact on the Amateur Service."

"Finding radio amateurs with the right skills and time to volunteer for the IARU is becoming more difficult."

But he said the work of the IARU is very important, and must continue. "Membership of the WIA is the way of individual radio amateurs to contribute to the well-being of their hobby, and

ensure it continues for future generations."

Fred ZL2AMJ said the sharing of information, and experiences, between radio societies at the IARU RIII conference will be of enormous benefit.

"I believe that the WIA is well down the track in working out an EMR (electromagnetic radiation) policy with its radio administration, the Australian Communications Authority.

"I am not aware of other societies in the region having got as far as that. We are looking forward to seeing a strong, firm and positive contribution on this issue by the WIA to the conference, providing a model on which they can deal with their radio administrations on the issue," said Fred ZL2AMJ.

Among the other contributions being eagerly anticipated from the WIA include a paper on the class licensed Low Interference Potential Device (LIPD) experience in Australia on the shared 70 cm band, he said.

ar

## For All Your Requirements

AUTHORISED DEALER

# ICOM

# KENWOOD

AMATEUR COMMERCIAL

WIRELESS COMMUNICATIONS

 **Tower**  
COMMUNICATIONS

14 Mary Street  
Hazelmere

Western Australia 6055

Telephone: (08) 9274 1118

Facsimile: (08) 9250 3734

E-mail: tower@eon.net.au

www: <http://www.tower.visionimage.com.au>

# DX NOTES

Ross Christie, VK3WAC  
19 Browns Road, Montrose 3765, Vic.  
Email [Yk3wac@aol.com](mailto:Yk3wac@aol.com)

## What price DXCC?

### How much money do you think it costs to achieve DXCC?

I was astounded after reading a very interesting article in 'DX Magazine' written by Don Boudreau, W5FKX, and John Barem, W6SL, who attempt to put a figure to it. The article has tables that show a breakdown of the cost into such things as equipment, antennae, QSL cards, IRC's, Green stamps, envelopes, stamps etc. To give just two examples,

(1) the cost of the DXCC certificate (basic 100 cards) is US\$2189.14 (approx. A\$3648.57), assuming it takes 2 years to achieve, with a successful QSL response rate of 70%, 20% of the cards sent via the bureau and 80% via direct or QSL managers. The real eye-opener is example

(2) the cost of the DXCC Mixed Mode Honour Role (DXCC 222+ cards). The breakdown for this achievement is a trifling US\$10690.33 (A\$17817.22)!

My own progress towards DXCC is plodding along nicely, I have sent QSL cards for CW QSO's to 122 countries so far and have received replies from 63. Most of my QSL's have gone out via the WIA QSL bureau, only about half a dozen have been sent direct. Being a keen CW operator I have set my sights on achieving DXCC on CW before I attempt it on SSB. In fact, checking my logbook, only 47 out of a total of 4516 contacts have been on SSB. It has taken me around 5 years to get this far, but then there is no hurry, is there?

A new DXCC entity recently appeared on Australia's northern doorstep. East Timor has been allocated the prefix block 4WA - 4WZ by the ITU for use by radio

stations operating in the areas administered by UNTAET (UN Temporary Administration of East Timor). Official radio stations have been issued with the prefix 4U, while UN amateur operations have been assigned the prefix 4U1. Private amateur stations will use 4W6. A number of amateurs have already been active from East Timor lately, notably Thor 4W6MM (TF1MM), Ross 4W6UN (VK8UN) and Antonio 4W6GH. Ross is a UN political affairs officer who has been in East Timor since last year, he will also act as custodian for the UN amateur station 4U1ET which will be established at the UNTAET headquarters in Dili. Ross has a PO Box in Darwin (see below for details) and will QSL *only* if stations send sufficient postage and a self addressed envelope. IRC's are out and QSLs received without enough to cover postage costs will definitely go via the bureau.

### The DX

- 4W, East Timor. There are now six active stations in East Timor: Jose 4W6EB/CT3EEB (QSL via homecall; Jose de Sa, PO Box 79, 3860, Estarreja, Portugal); Antonio, 4W6GH/CT1EGH (QSL via homecall); Thor, 4W6MM/TF1MM, Ross, 4W6UN/VK8UN (QSL via VK3OT, Steve R. Gregory, PO Box 622, Hamilton, Victoria 3300, Australia); Nev, 4W6VK2QF (QSL via homecall, Nev Mattick, Hargraves, NSW 2850, Australia); Bernie, 4W/W3UR (QSL via OH2BN; Jarmo J. Jaakola, Kiillettie 5-c-30, 00710 Helsinki, Finland. Bernie is signing as 4W/W3UR and not as 4W6DX as previously announced "due to a misunderstanding at the licencing authority".

- 5I, Yambie Island, Tanzania (New IOTA). Nasser, A41KG is part of a twelve member team of the Royal Omani Amateur Radio Society (ROARS) who will be traveling to the Tanga Province, Tanzania on June 27th, to activate Yambie Island. The ROARS team have obtained permission to activate Yambie Island from the Tanzania Communication Commission. They will use the call signs 5I3A and 5I3B. They plan to be on the air simultaneously from July 1-10th, operating SSB/CW and digital (PSK31) on all bands. QSL via A47RS, P.O. Box 981, Muscat, Code: 113 Sultanate of Oman. [Thanks to OPDX].
- FR/T, Tromelin Island. A Dxpediton by The Lyon DX Gang all-band all-mode Dxpediton to Tromelin (AF-031) is now scheduled to take place between 1<sup>st</sup> and 16<sup>th</sup> August (the first station might be active on 31 July in the evening). The operators will be F5PXT, F5PYI, F6JJX and F5NOD. Further information will be released later. The web site at is <http://perso.easynet.fr/~f6jix/> [Thanks to 425DXN]
- GM, Summer Isles, Scotland. Jim, MM0BQI will be active on 80-10 metres, no WARC, mostly on SSB (with some CW) as MM0BQI/p from the Summer Isles (EU-092) between 12:00 UTC on 16<sup>th</sup> June and 16:00 UTC on the 18<sup>th</sup> June. QSL via MM0BQI either direct (Jim Martin, 3 Lismore Avenue, Edinburgh. EH8 7DW Scotland) or through the bureau. [TNX MM0BQI and RSGB]
- V3, Belize. Baldu, DJ6SI is active as V31OM. QSL via DJ6SI



# QRV in Antarctica

Antarctica is a continent that interests many people for many reasons. It is a remote and harsh place and the personnel who winter over at the various bases are to be thanked for activating this vast continent of rock and ice. Here is an extensive list of operators currently QRV there. I was lucky to work VE, R1AND on 15m CW on April 25<sup>th</sup> I heard him call CQ while checking the band for activity and gave him a call. As soon as we finished and I sent 73 the dog-pile began. His signal sounded 'fluttery' due, no doubt, to the effects of the magnetic pole.

- UA1BJ/R1ANZ conducts a daily net called the 'Russian Antarctic Polar Net' on 14160kHz at 16:00z.
- The 'South Pole Polar Net' is another daily net conducted by K1IED on 14243kHz at 00:00z.
- Dave, K1IED, operates KC4AAA (K-08), the USN Mars station at Amundsen-Scott base, Antarctica. He will be active from now until 20 November 2000. Look for him on 14243kHz at approx. 05:00z. QSL to K1IED (Larry F. Skilton, 72 Brook Street, South Windsor, CT-06074, USA).
- LU1ZA (LU-14), NAVY ORCADAS – Laurie Island, South Orkney Islands. This station is active now. QSL via S.A.R.A. (Servicio Auxiliar de Radioaficionados de la Armada) via bureau Argentina.
- LZ0A (LZ-02), ST. KLIMENT OHRIDSKI – Livingston Island. Danny, LZ2UU, is active now. He will be QRV every Wednesday and Saturday at 09:00z on 14325kHz. QSL to LZ1KDP (Radio Club, PO Box 812, 1000 Sofia, Bulgaria).
- HF0POL (SP-01), HENRYK ARCTOWSKI – King George Island. Marek, SP3GVX is active now. QSL to SP3WVL (Tomasz Lipinski, Ul.1 Paderewskiego 24m 1, 69-100 Slubice, Poland).
- R1ANF (UA-04), SAAM BELLINGSHOUSEN – King George Island. Operator is Oleg, UA1PBA, and is on the air now. QSL to RK1PWA (Nick Shapkin, PO Box 73, 164744 Amderma, Arkhangelskaja, Russia).
- R1ANZ (UA-07), SAAM MIRNY

## QSL Routes and Managers

Call	QSL via
4W6UN	Thorvaldur Stefansson, PO Box 3699, Darwin, NT 0801, Australia
4O0A (CQ WPX SSB 2000)	via bureau to YU1SRS
5R8FA (IOTA AF 057)	via JE8BKW. NOT via 11PIN
7O0UY	This station is a PIRATE. Vladimir Drogan, UY0UY, is neither operator nor manager of this station
ED1VHF	via bureau to EA1BSK or via Apartado 6128, E-36200 Vigo, Spain
HC4NGF	Francel Garcia, Box 08-01-224, Esmeraldas, Ecuador
JY5HX	Since the Jordanian QSL bureau is not working reliably Munzer asks for direct QSLs to his call book address, be sure to include return postage. Box 096, 64001-970 Teresina PI, Brasil
PS8DX	Sava, Box 733, Kaliningrad City, 236010, Russia
RN2FS	Direct to CRAG/TG0AA, Box 115, Guatemala 01001, Guatemala. NOT via TG9AJR.
TG0AA	via bureau or Western Sovereign Base Area ARC c/o Air Training Corps, RAF Akrotiri, BFPO 57, GPO, Great Britain
ZC4AKR	

- Guillaume II Coast. Operator Valentin is currently on air. QSL to RU1ZC (Valentin Mykitenko, Akademgorodok 2 1, 184340 Loparskaya, Russia).
- R1AND (UA-08), SAAM NOVOLAZAREVKAYA – Princess Astrid Coast. Operator is Victor Karrashev (ex R1ANF, R1ANT, 4K1A, 4K0D) is active now. QSL to DL5EBE (Dominik Weiel, Farhrstr. 16, D-27568 Bremerhaven, Germany).
- EM1U and EM1KY (UR-01), Academic Vernadsky Base – Galindez Island. Pavlo (Pavel) UT1KY, is active now, using both of these call signs. QSL to UT7UA (Roman Bratchyk, PO Box 19, Kyiv 01001, Ukraine).
- 8J1RL (JA-02), NIPR SYOWA – Ongul Island. Taku, JG3PLH, is active from the Japanese Antarctic base. Taku prefers CW and will be unable to confirm contacts until he returns home in March 2001. QSL via bureau to JG3PLH (Takumi Kondoh, 1-23 Shinke-cho, Sakai City, Osaka 599-8232, Japan).

## IOTA Activity

Looking through the various DX news sheets I see quite a lot of IOTA activity planned for the summer in the Northern

Hemisphere. I wonder if there are many IOTA chasers in VK? Drop me a note or email me and let me know.

- (EU-068) A group of Belgian operators will be active from Sein Island in July. They have applied for the calls TM4CK and TM4ON (the latter to be used during the IOTA Contest). They now plan to start operations on 27-28 July and to leave the island on 1 August. More information will be made available later. The expedition site is at <http://www.qsl.net/on6ck> [TNX ON9CGB]
- For those new to the IOTA program or would like to give it a go, the IOTA frequencies are:
- CW 28040, 24920, 21040, 18098, 14040, 10114, 7030, 3530 kHz  
SSB 28560, 28460, 24950, 21260, 18128, 14260, 7055, 3765 kHz

## Late News

Hans, DK9KX, has released a press release announcing the end of the current operation of the special activity station 7O1YGF in the Republic of Yemen. A team of German operators (DJ7MG, DK1II, DK3KX and DL5EBE) who have been active since their arrival on April 17<sup>th</sup>, have been requested by the authorities to cease operation. Apparently

*continued on page 37*

# DON'T MISS THE ACTION!

## VX-IR 2m/70cm Micro Handheld

One of the worlds smallest dualband handhelds, just 47 x 81 x 25mm (W.H.D.) including a high capacity 700mA/H Lithium-ion battery! The VX-IR covers both 2m and 70cm amateur bands, plus offers AM/FM and TV sound reception, 2 hour fast charging as standard, simple settings and a large LCD screen.

### Features

- Tx: 144-148, 430-450MHz
- Rx: 0.5-1.7MHz, 76-300MHz, 300-580MHz, 580-999MHz (cellular locked out)
- Output: 2m/70cm 0.5W (at 3.6V), 1.0W with external DC
- 291 memories, most with alpha naming
- AM, FM(n), and FM (w) reception modes

- CTCSS encode/decode
  - 31 smart search memories
  - Tone search for CTCSS and DCS
  - Includes FNB-52LI 3.6V 700mA/H Lithium-ion battery, regulated AC adaptor/charger, antenna and belt-clip.
- D 3665

**YAESU**

**\$399**

**2 YEAR WARRANTY**



## VX-5R 6m/2m/70cm Deluxe Hand-Held

Tiny yet incredibly rugged, the VX-5R provides 6m, 2m and 70cm amateur band operation with 5W output as standard (4.5W on 70cm), made possible by a unique PA design and a super high capacity 7.2v 1100mA/H Lithium-ion battery. Plus, ultra-wide coverage VHF and UHF as well as AM medium-wave and shortwave reception facilities are provided, along with a large backlit dot-matrix LCD screen. All this in a diecast aluminium enclosure just 58 x 87 x 28mm WHD (without knobs or antenna)!

### Features

- Tx: 50-54, 144-148, 430-450MHz
- Rx: 0.5-1.8MHz, 1.8-16MHz, 47-729MHz, 800-999MHz (cellular blocked)
- Full feature keypad, CTCSS encode/decode, digital code squelch
- Comprehensive menu system
- Over 200 memories
- 8 digit alpha-numeric memory labelling
- 5 battery saving systems, plus Tx/Rx usage monitor

- Spectra-Scope™ for monitoring adjacent channel activity
  - Comes with FNB-58LI Lithium-ion battery, flexible antenna and AC adaptor/charger
- D 3670

**YAESU**

**\$699**

**2 YEAR WARRANTY**

**BONUS BONUS BONUS**

Purchase a VX-5R during April, May or June 2000 and receive a CD-15 Desk Rapid Charger (D 3672 valued at \$49.95) at no charge!



## Yaesu FT-90R 2m/70cm micro mobile

Another engineering breakthrough from Yaesu – a tiny dual-band mobile rig with high power output, a remoteable front panel, and a rugged receiver front-end. The FT-90R provides 50W RF output on the 2m band as well as 35W output on the 70cm band, a solid diecast casing with microprocessor controlled cooling fan for reliable operation, and a large backlit LCD screen, all in a package measuring just 100mm x 30mm x 138mm.

### Also includes:

- Wide dynamic range receiver for greatly reduced pager breakthrough
  - Huge receiver coverage – 100-230, 300-530, 810-999.975MHz (Cellular blocked)
  - 180 memories and a variety of scanning functions
  - Built-in CTCSS encode/decode, battery voltage metering
  - Designed for 1200 and 9600 baud packet operation
  - Tiny remoteable front panel (requires optional YSK-90 separation kit)
  - Includes MH-42 hand mic, DC power lead, and easy to follow instructions.
- D 3312

**YSK-90 Front Panel Separation Kit** D 3317

**\$129.95**

**YAESU**

**\$899**

**2 YEAR WARRANTY**



# FOR ALL YOUR COMMUNICATION NEEDS

## High Performance 2m Base Station Antennas

Diamond base station antennas offer outstanding quality and exceptional value. This stacked collinear type provides high gain, wide bandwidth and a low radiation angle for extended range. The fiberglass reinforced polyester outer radome and gasket seals provide excellent all-weather operation and compact ground-plane radials are supplied. Stainless-steel mounting hardware ensures a long, trouble-free life. Supplied with instruction sheets for easy set-up.



## 2m Antenna F-23A

Frequency: 144-148MHz  
Gain: 7.8dB  
Max. Power: 200W  
Length: 4.53m, max wind 40kms  
Type: 3 x 5/8"  
Connector: SO-239 socket  
D 4850

**\$169**  
**SAVE \$30**

**CLEARANCE**

## FT-2500M 2m Heavy-Duty Transceiver

Built tough to take the rough stuff, the Yaesu FT-2500M meets US MIL-STD 810C for shock and vibration so it'll provide years of reliable mobile operation. Its easy-to-operate front panel design, rubber coated knobs, and large Omni-Glow display are teamed up with a one-piece diecast chassis to set the FT-2500M apart from other 2m mobiles. For improved front-end performance, Yaesu's exclusive 3-stage Advanced Track Tuning feature and dual-FET mixer reduce overloads from strong signals while providing excellent sensitivity and wide-band receive operation.

D 3632

### Also includes:

- 31 tuneable memories
- 7 selectable tuning steps
- Various scanning modes
- In-built CTCSS encoder
- MH-26 hand mic, mobile mounting bracket and DC power lead.

### Specifications:

Frequency range: Tx 144-148MHz, Rx 140-174MHz  
Output power: 50W, 25W, 5W  
Sensitivity: better than 0.2uV for 12dB SINAD  
Image rejection: better than 70dB  
Max audio output: 2.0W into 8 ohms (10% THD)  
Dimensions: 160 x 50 x 180 (W.H.D)

**2 YEAR WARRANTY**

**YAESU**

**\$399**

**CLEARANCE  
BELOW COST!**

**SAVE \$100**



# PowerHouse stores

## A shopping experience like no other!

Dick Smith PowerHouse stores not only offer an expanded range of those original electronics products that have made our stores famous, but now you can experience the fun of using a wide range of communication equipment in our hands-on demonstration area.

Called the "Ham Shack", each PowerHouse store has a dedicated area where licensed staff can show you the latest Yaesu, Uniden, or Magellan communications and GPS products, as well as an expanded range of accessory lines that may not be available in other stores.

Not involved in Ham Radio? Staff can also advise on the installation of a CB radio for your four-wheel drive vehicle, how to get involved in listening to Shortwave radio stations from around the world, or assist you in the selection of a suitable accessory for an existing piece of equipment. For bushwalking or boating users, you can also find out about the latest in inexpensive satellite based navigation receivers or emergency beacons, or just browse through an extensive selection of communications related books.

The PowerHouse is also the place to go if you simply need a component to finish that weekend project, to buy tools, or just to while away a few hours while checking out our

in-store technical books, library CD-ROMS, or our dedicated customer use Internet terminals.

With over 20,000 product lines in the electrical, computer, and communications areas, our new PowerHouse stores get the wavelength right!



### PHONE FAX AND MAIL ORDERS

**PHONE:** WITHIN AUSTRALIA: 1300 366 644  
(local call charge)

**FAX:** (02) 9395 1155 within Australia and  
(+612) 9395 1155 from outside Australia

**MAIL:** DICK SMITH ELECTRONICS, Direct Link, Reply Paid 160,  
PO Box 321, North Ryde NSW 1670 (No stamp required)

Excludes packaging and postage. All major credit cards accepted.  
14 Day Money Back Guaranteed if NOT completely satisfied. (Software excluded)



Visit our web site at  
<http://www.dse.com.au>



**That's where you go!**

Yaesu transceivers and accessories stocked in selected stores only.  
Other stores can place orders on a deposit-paid basis.  
Offers expire 30/6/2000.

1074 DPS inc



# Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. One councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcasts schedules and subscription rates. All enquiries should be directed to your local Division.

**VK1 Division** Australian Capital Territory,  
GPO Box 600, Canberra ACT 2901  
President Gilbert Hughes  
Secretary Peter Kloppenburg  
Treasurer Edwin Alcott

VK1GH  
VK1CPK  
VK1NBH

**VK2 Division** New South Wales  
109 Wigram St, Parramatta NSW  
(PO Box 1068, Parramatta 2124)  
(Office hours Mon-Fri 1100-1400)  
Phone 02 9689 2417  
Web: <http://www.ozemail.com.au/~vk2wi>  
Freecall 1800 817 644

e-mail: [vk2wi@ozemail.com.au](mailto:vk2wi@ozemail.com.au)  
Fax 02 9633 1525  
President Michael Corbin  
Secretary Barry White  
Treasurer Pat Leeper

VK2YC  
VK2AAB  
VK2JPA

**VK3 Division** Victoria  
40G Victory Boulevard Ashburton VIC 3147  
(Office hours Tue & Thur 0930-1500)  
Phone 03 9885 9261  
Web: <http://www.vtsa.com.au/~wvavc/>  
Fax 03 9885 9298

e-mail: [wvavc@alphalink.com.au](mailto:wvavc@alphalink.com.au)  
President Jim Linton  
CEO Barry Wilton  
Secretary Peter Mill

VK3PC  
VK3XV  
VK3APO

**VK4 Division** Queensland  
GPO Box 638 Brisbane QLD 4001  
Phone 07 3221 9377  
e-mail: [office@wiaq.powerup.com.au](mailto:office@wiaq.powerup.com.au)  
Fax 07 3266 4929

Web: <http://www.wia.org.au/vk4>  
President Colin Gladstone  
Secretary David Jones  
Treasurer Bill McDermott  
Office Mgr John Stevens

VK4ACG  
VK4OF  
VK4AZM  
VK4AFS

**VK5 Division** South Australia and Northern Territory  
(GPO Box 1234 Adelaide SA 5001)  
Phone 08 8294 2992  
Web: <http://www.gst.net/wiasant>

President Jim McLachlan  
Secretary David Minchin  
Treasurer John Butler

VK5NB  
VK5KK  
VK5NX

**VK6 Division** Western Australia  
PO Box 10 West Perth WA 6072  
Phone 08 9351 8873

Web: <http://www.omen.net.au/~vk6wia/>  
e-mail: [vk6wia@omen.net.au](mailto:vk6wia@omen.net.au)  
President Neil Penfold  
Secretary Christine Bastin  
Treasurer Bruce Hedland-Thomas

VK6NE  
VK6ZLZ  
VK600

**VK7 Division** Tasmania  
PO Box 371 Hobart TAS 7001  
Phone 03 6233 3709 (BH)  
Web: <http://www.wia.tas.net>  
email: [batesjw@netspace.net.au](mailto:batesjw@netspace.net.au)  
Fax 03 6223 7816

President Phil Corby  
Secretary John Bates  
Treasurer John Bates

VK7ZAX  
VK7RT  
VK7RT

## Broadcast schedules All frequencies MHz. All times are local.

**VK1WI:** 3.590 LSB, 146.950 FM each Sunday evening from 8.00pm local time. The broadcast text is available on packet, on Internet [www.radio.amateur.misc](http://www.radio.amateur.misc) news group, and on the VK1 Home Page <http://www.vk1.wia.ampr.org>

**Annual Membership Fees.** Full \$72.00 Pensioner or student \$58.00. Without Amateur Radio \$44.00

From VK2WI 1.845, 3.595, 7.146\*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (\* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup [www.radio.amateur.misc](http://www.radio.amateur.misc), and on packet radio.

**Annual Membership Fees.** Full \$69.00 Pensioner or student \$56.00. Without Amateur Radio \$41.00

**VK3BWI** broadcasts on the 1st and 3rd Sunday of the month at 8.00pm. Primary frequencies, 3.615 LSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3WI on Victorian packet BBS and WIA VIC Web Site.

**Annual Membership Fees.** Full \$75.00 Pensioner or student \$61.00. Without Amateur Radio \$47.00

**VK4WIA** broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rtpr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 MHz, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ/VKNET. QNEWS Text and real audio files available from the web site

**Annual Membership Fees.** Full \$85.00 Pensioner or student \$72.00. Without Amateur Radio \$56.00

**VK5WI:** 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Midura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday, 3.585 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday.

**Annual Membership Fees.** Full \$77.00 Pensioner or student \$63.00. Without Amateur Radio \$49.00

**VK6WIA:** 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Bussellton, 146.900 (R) Mt William (Bunbury), 147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900, 147.000, 147.200, 147.250 and 147.350 MHz. Also in "Real Audio" format from the VK6 WIA website

**Annual Membership Fees.** Full \$69.00 Pensioner or student \$59.00. Without Amateur Radio \$38.00

**VK7WI:** 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

**Annual Membership Fees.** Full \$88.00 Pensioner or student \$75.00. Without Amateur Radio \$55.00

**VK8** Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).



# Division News

## VK1 Notes

### Forward Bias

There was no General Meeting on April the 24<sup>th</sup>; too many members were away on holidays. It also meant that the Trash & Treasure event was cancelled. By the time you read this in June, T&T in May, has come and gone until the next one on August 28.

The ACT Division welcomes Mr A. (Tony) J. Vickers, VK1VIC, who was VK2VIC in Koorlingal, NSW, until recently. Membership stands at 152 presently, having lost one member last month (L10173). While on the subject of members, one of our very own, Philip Longworth, VK1ZPL, has been appointed National WICEN Co-ordinator at the recent Federal Annual General Meeting. Phil has spent much time and effort with WICEN since his arrival here from Albury-Wodonga, where he was Regional Co-ordinator for the Murray district in NSW. Phil also made a name

for himself when living in Victoria, when he was Regional Co-ordinator for the "Papa" district. Given his knowledge, experience, and dedication to this part of the hobby, we can expect a new impetus in WICEN activities throughout the Nation.

Another ACT amateur, who is well known to us all, Gilbert Hughes, VK1GH, was also elevated to an important position in the Federal organisation. Gilbert was appointed Word Radio Conference/International Telecommunications Union (WRC/ITU) co-ordinator. Gilbert has already attended several ACA meetings in this capacity, where among others, he was given the job of participating in a small team that has the objective of drafting an 'Information Paper' regarding the application of the ACA's EMR standard for the amateur Radio Service. Gilbert says that the paper will be considered by

Peter Kloppenburg VK1CPK

the ACA-chaired Industry committee meeting in June this year.

Last but not least, our Vice-President ACT Division, Federal Councillor, champion of the "70cm linked repeater system", Glenn Dunstan, VK1XX, was reappointed to the ACA Liaison Committee. Glenn is involved in several important issues affecting radio amateurs in Australia. Among these are the 80-metre DX window, the new 160-190 kHz band, the 7 MHz allocation, and Article S.25 (Morse) removal of the Morse code.

Watch this space folks, it won't be long before the smallest Division makes the biggest impact on the future of amateur radio in Australia. Coming down to earth; the next General Meeting will be held on Monday 8pm, June 26, at the Griffin Centre, Civic, Canberra City. Cheers Peter K.

## VK2 Notes

by Pat Leeper VK2JPA  
patleep@bigpond.com

The Annual General Meeting was held on Saturday 15th April and was quite well attended. The day went well, and the barbeque lunch, with steak and sausages provided by Brian Kelly VK2WBK, had

many coming back for seconds.

The result of the 2000-2001 Divisional Council election was announced, and the following people were successful: Ken Westernman VK2AGW, Michael Corbin VK2YC, Barry White VK2AAB, Brian Keegan VK2TOX, Brian Kelly VK2WBK, Geoff McGrorey-Clark VK2EO, Pat Leeper VK2JPA, Chris Minahan VK2EJ, and Terry Davies VK2KDK.

There were no motions listed but that did not stop much discussion during general business as usual.

Certificates of appreciation for members with 60 and 50 year

memberships of the WIA were presented after lunch. Only one of the 60-year membership recipients was present this year, with a number of the 50-year recipients. For those unable to attend, the certificates are being posted out.

After the meeting office bearers were elected. The President is Michael Corbin VK2YC, Senior Vice President Brian Keegan VK2TOX, Junior Vice President Terry Davies VK2KDK, Secretary Barry White VK2AAB, Treasurer Pat Leeper VK2JPA. Ken Westernman VK2AGW was appointed Affiliated Clubs Officer with the May Conference of Clubs needing to be looked after. Other portfolios will have been allotted at the May meeting by the time you read this.

And that's all for this month from the VK2 Division.



Barry White VK2AAB receiving his 50 year certificate from Michael Corbin VK2YC

# VK3 Notes

Website: [www.tbasa.com.au/~w1avjc](http://www.tbasa.com.au/~w1avjc)

Email: [w1avjc@alphalink.com.au](mailto:w1avjc@alphalink.com.au)

By Jim Linton VK3PC

## New subscription rate

Members may have noticed the increase in the membership subscription being charged by most Divisions. This is the direct result of the goods and services tax (GST) and the need for the Federal WIA to fully recover the production cost of AR Magazine from ALL GRADES of member.

The WIA Victoria Council conducted a major review of policy in February, and one of the decisions taken was to return to the use of a voluntary labour resource to staff the office from July 2000.

The resultant savings in overhead costs will flow directly into the membership and WIA Victoria will subsidise the subscription rate to maintain a comparatively low fee structure. The greatest subsidy will be for our older loyal "Concessional" grade members who have supported us over many years.

The ongoing success of this WIA Victoria Council initiative will depend entirely on the response by members and their willingness to provide suitable volunteers to open and run our office. We would also like to open on Saturday morning in addition to Tuesday and Thursday.

We only need 4 hours of your time - once a fortnight - 10am to 2.30pm so if you can help please give the office a call.

The Council will review the subscription rate in December and the response by members.

From July 1 WIA Victoria subscriptions including GST will be:

- Full Member - \$78.00 an increase of only \$3.00 (less than the GST)
- Concessional - \$61.00 No increase
- Without AR - \$47.00
- Associates - \$78.00

The Full Grade subscription represents \$150 a week, while those who elect not to receive AR magazine are to pay around 90 cents a week.

The Council has adopted responsible new policies, and is looking for an

increased partnership with the membership at large.

Individual members have a role to play including giving encouragement to others to join WIA Victoria, promoting our hobby particularly those who may be interested in becoming radio amateurs, and to seriously consider how they can contribute the needed voluntary labour resource.

## What's new on the website

The WIA Victoria website is continuing to develop. The latest additions are:

- Australia's first Intruder Watch Online. Anyone with a receiver covering the ham bands, and email, can now easily log intruders and transmit the details to Intruder Watch. Individuals and radio clubs will be encouraged to target an intruder each month, and support Intruder Watch, which is help to protect our exclusive HF bands.
- A link has been set up to the BluSat micro-amateur satellite project. The website will bring news about the exciting project in coming months.
- A website visitor's survey form so you can quickly let us know about yourself and the section or sections of the website you read.
- The IARU Region III Conference being held in Australia for the first time. Read all about this most important regional meeting. WIA Victoria is helping to raise awareness of this event that will have impacts on our hobby for years to come.

The previously announced Members Section is due to come online fairly soon. It requires members to register via the website and have their membership status verified. This usually takes five working days, and is confirmed via email. The first batch of registrants signed on at the WIA Victoria AGM on 31 May. The website's

News Online section that is totally updated at the first of each month, and Education Online with interactive trial exams for Novice and AOC theory, and Regulations, continue to be highly popular.

## Office hours

The WIA Victoria office is open for member services and inquiries on Tuesdays and Thursdays from 10am to 2.30pm. The telephone number is 9885 9261 and fax 9885 9298. The office is to be staffed by volunteers. A couple of members have recently received some initial training in office procedures and WIA Victoria policy. The new "volunteer" system is expected to be fully operational by the end of this month, and if further suitable volunteer labour can be found the office will also open 10am to 12.30pm on Saturdays.

## Morse help

WIA Victoria is prepared to run a "Morse Camp" if there's sufficient interest, to assist those wishing to take advantage of the 5wpm Morse code proficiency requirement for full access to the HF amateur bands.

What is a Morse Camp? It is an intensive training session aimed at imparting the learning skills necessary to be code proficient.

The lowered code requirement may be attractive enough to lure some limited licensees, or prospective radio amateurs, to give it a try and qualify for the Morse code exams - who knows they may even fall in love with AIA, a love bug of another kind. They have nothing to lose, but the gains include learning a new skill and being able to take advantage of the good propagation on the HF bands during the peak of the current sunspot cycle. The Morse Camp, a once in a lifetime opportunity, will be advertised on the VK3BWI broadcast and the WIA Victoria website.

## Unrestricted Zone

Non members or prospective members of our Institute can read monthly minutes, WIAQ proposals, AGM and Ex-Officio's reports on our website. These are posted at the earliest opportunity when they become available. Several overseas Societies have this facility for their own members, on members' only websites, but your WIAQ has provided the service FREE to ALL. This is our contribution to open Government.

The address and if you haven't put this in your 'favourites' change it NOW as the VK4 web address is about to change, ALWAYS enter via the link from the WIA Federal website: [www.wia.org.au/vk4](http://www.wia.org.au/vk4)

## IARUMS Reports

Tom Walker, VK4BTW our VK4 Coordinator for IARUMS has reported that some 1238 intruders were logged for the year, with over half of these on 20 metres! The signal receiving the most reports was on 14.211.5 MHz. This is RTTY with 850 Hz shift @ 112 baud, traffic and Mark and Space tones are heard anytime that the band is open.

The very conscientious observers who contributed to the logging and submitted reports throughout the year were KEN VK4JR, HARRY VK4LE, COL VK4AKX, JACK VK4BXC and DOUGAL VK4EKA.

Tom has circulated all the Queensland clubs listed in the 2000 callbook with the idea of appointing observers from their membership. These observers would be asked to actively monitor particular intruders in a concentrated pattern of logging.

All reports are welcomed by the IARUMS co-ordinator and add weight to the submissions to authorities to have intruders moved. Reports can be forwarded to:

I. W. Co-ord. Qld.  
T. A. Walker,  
13 Bothwell Street, Toowoomba Q. 4305  
or Packet VK4BTW @  
[VK4WIP:IPS.QLD.AUS.OC](mailto:VK4WIP:IPS.QLD.AUS.OC)

## Divisional Broadcasts In Mackay

Brian VK4KBS reports:

"Here I use the RA files to broadcast the News via our local repeater VK4RMK on 147 MHz situated on Black Mountain at Farleigh a few kms on the highway north of Mackay. I usually take the files down on Friday about midday, as this is when I seem to get the best file transfer rate (about 4.00 kb/s). I use a Yaesu FT-767 GX for the broadcast and only need to use a couple of watts output as we live only a couple of kilometres from the repeater site.

Thanks for the News Graham, from Brian VK4KBS."

Well done Brian in the valuable rebroadcasting role for Qnews.

Then there is "RELAY PNG STYLE"

The PNGARS has two major areas of activity and there must be two rebroadcasts.

Rick P29KFS does the Port Moresby broadcast "live" taking the audio from 20 metres which comes from a 2-metre repeater which may itself come from yet another repeater. The aerial is a full wave quad loop with 1/4-wavelength sides about 3 metres off the ground. It has a linear 1/2-wave reflector on the north side to optimise reception from Queensland and this does seem to work well.

The receiver is a Watkins Johnson HF1000 with 2.6kHz audio bandwidth filtering. The audio is fed into an MFJ 784 DSP unit, which eliminates the QRM from Philippine and Indonesian HF CB and the carriers are often plonked right on top of the broadcast. The rough and ready interlink uses headphones to a speaker mike on an old Kenwood TR2500 HH which runs on low power into a special version of a coaxial dipole. This is a "dog food dipole" made out of two PAL cans and a whip. The few hundred milli-watts is quite enough for the P29RPM repeater on Burns Peak to copy noise free and lets Rick ID over the top with a hand held when sitting outside on the balcony.

The repeater is about 4 km away and line of sight from Ricks' home QTH. The repeater is an old FM828 with split antennas and a 10" pass / notch diplexer. As well as this, an extra 5" bandpass cavity in the receive leg is followed by a LUNAR PAG144 preamp before the main diplexer cavities. With 10W transmit power out to another dipole, this is sufficient to cover the Port Moresby area.

Very innovative stuff that! You must pass on the theory behind the "PAL-CAN dipole" Rick, for the next Antenna Compendium of course.

## Gladstone Repeaters

In the Gladstone area, by all accounts, they have their 6-metre repeater is still out of action. Both President Geoff VK4GI and Stuart VK4YFI have volunteered to get it up and running again.

Further more people could soon access the 70-cm VK4RGT repeater on Mt. Maurice, when the antenna situation has been addressed. The 2 metre repeater VK4RMV could well be relocation to a better site in the town of Seventeen Seventy, but this is still the subject of discussion. So it looks like the Gladstone club have their hands full in improving repeater coverage in their area.

Which is just another reason that NO MATTER WHERE YOU LIVE, you should give serious thought to providing help to the various clubs that are doing such a great job to give you the best facilities available. It is also quite enlightening to see the repeater sites up close.

73s from Alistair

**Amateur  
Radio**  
— everything  
for the  
active amateur

## "QRM", VK7 Notes

How often do we hear the complaint "amateurs are great talkers" but nowhere near as good at the "doing" part.

Well, here's a story about an enthusiastic amateur who decided to "do his bit".

It's about Elwyn Harris, VK7EH. Elwyn for a start decided that he was not going to wait for the regulations change to allow him to get full privileges on the bands. Only two month's ago Elwyn passed his 10 w.p.m. Morse test and graduated from "KEH" to "EH" and is

now having the time of his life talking all over the world.

Elwyn wanted to share his experiences with his fellow brethren and so, at the local Tamar Valley Masonic Lodge, set up an amateur station. Surrounded by a big group of wide-eyed brethren he then proceeded to talk to Hams around the world, after which he spent the rest of the evening in "question and answer" mode about our hobby stressing what a wonderful post-retirement hobby it could be. We take our hat off to Elwyn for

setting up what is possibly the first "Masonic" radio station.

Another amateur who was determined to get his "Proper" full call with 10 w.p.m. Morse was the Secretary/Treasurer of our Northern WIA branches, Tony Simmonds, now VK7TY. Good work, Tony.

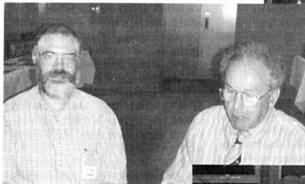
All three VK7 WIA branches are starting Novice and full call classes and we hope these activities will pay off in many new members.

Cheers for now,

Ron Churcher VK7RN.



John VK7RT, State Treasurer and Phil, State President/Federal Councillor



Robert VK7RB, Webmaster and John VK7KVB, Broadcast Officer

## Snapshots from the VK7 Annual Dinner held in Hobart earlier this year



Scott VK7HSE, Southern Branch President and Mike VK7FB, State Councillor



John VK7KCC, Sylvia (KCC), Heather (KVB) and Dick VK7KVB



## 5/8 Wave

The SA & NT division held our AGM on Tuesday the 23<sup>rd</sup> of May. The meeting was well attended by members, and office holders presented the usual reports. The committee for the year 2000/2001 is as follows:

President - Jim VK5NB  
Secretary - David VK5KK  
Treasurer - John VK5NX  
Minutes Secretary - Mark VK5AVQ  
Budget Officer - Trevor VK5ATQ  
Federal Councillor - David VK5OV  
Education Officer - Geoff VK5TY  
Membership Recruitment - Michael VK5ZLC

IT & Media - Joe VK5UJ

Also on the council is Andrew VK5EX - WICEN Chairman and Adrian VK5ZSN.

Contact details for all of the above are available on the divisional website [www.sant.wia.org.au](http://www.sant.wia.org.au)

In March, the Barossa Amateur Radio Club installed South Australia's first fully

operational 9600-baud packet port on their BBS VK5BRC. VK5BRC is located at the same site as the Barossa Valley repeaters; W.I.A. SA & NT and B.A.R.C jointly fund this site. More details can be obtained from the club website [www.qsl.net/vk5brc](http://www.qsl.net/vk5brc)

In April a new divisional repeater was commissioned, this repeater is on 6metres with the output being 53.775 MHz input on 52.775 MHz. The repeater is located at the WIA Crafters site using the call sign VK5RAD; the Crafters site also houses repeaters on 2m and 70cm. The division would like to extend sincere thanks to Colin VK5ACE for his time and effort put into this project.

In May the division received the licence for the new 70cm repeater in Port Lincoln, the repeater call sign is VK5RPL and operating on 438.225 MHz with a negative offset. Thanks to Michael VK5ZEA and all the hams in Port Lincoln

for their hard work getting this repeater up and running. At present the repeater is still on test, so there may be times when you cannot access it. If you are over in Port Lincoln give it a try.

Recent changes by the ACA to the broadcast definition in Amateur Licences have resulted in the loss of the Disposals Corner segment from our weekly divisional Broadcast. The SA & NT Committee are very disappointed with this state of affairs, as are many members, however the ACA has asked that the segment be discontinued. Currently Barry VK5KCX is still maintaining a list of items for disposal on his web page, just click on the Disposals link on the divisional web page. We will keep members informed of action at a federal level that will hopefully rectify this situation.

Until next time, Joe vk5uj@qsl.net

ar

## SILENT KEY

### Col Craigen VK2NJC

It is with the deepest regret that the Manly-Warringah Radio Society records the passing of Col Craigen VK2NJC on March 18<sup>th</sup>. He was 82. A man of distinguished appearance and possessed of a fine intellect, Col lent dignity to all our proceedings. Always regarded as "a gentleman of the old school", Col was liked by all and he carried with him a wealth of experience. Only when the weather was at its worst would Col fail to turn up at the regular weekly meetings.

First licensed in the UK in 1936, he spent his career in radio and television, his experience with television going back to the earliest days of the technology when mechanical scanning was in the experimental stage. At one point Col made a television appearance for Logie Baird and thus could justly claim to have been one of the first people ever televised.

Upon the outbreak of World War II Col joined the Royal Air Force. One day in the summer of 1940, just as the Battle of Britain was getting under way, Col was mystified to be posted to a derelict-

looking factory in Watford, in southern England. There, to his intense surprise, he found himself in the company of eleven other radio amateurs all of whom had been selected by a young civilian called Dr R. V. Jones.

Dr Jones had been charged by the then Prime Minister, Winston Churchill, to discover and thwart the German beam-bombing navigational system which was having a devastating effect. This system enabled the German aircrews to fly to a target and accurately to drop their bombs at a predetermined point. Dr Jones knew that to do this task he needed people of technical imagination and flair and he also knew that such people were best found among the radio amateurs of the day.

Within weeks Dr Jones and his team built special transmitters which had the effect of corrupting the beams and confusing the German aircrews so much so that they were sent off course. In the parlance of the day Dr Jones was popularly credited with having "bent" the beams and once the Germans realised that they abandoned the system.

In the RAF Col met and became a personal friend of Arthur C Clarke who was serving at the same time with him and

together they worked upon the development of radar. Recently Colin recounted to the club how Clarke had explained to him his idea using manned geostationary satellites for radio communication, a theory which Clarke then published in *Wireless World* in October 1945.

(Incidentally, A facsimile of the article can be found at

<http://www.lsi.usp.br/~rbianchi/clarke/ACCETRelaysFull.html>)

In 1947 Col migrated to Australia and worked for AWA until his retirement, one of his major involvements being the broadcasting and telecasting of the 1956 Olympic Games in Melbourne. After retiring Col renewed his interest in ham radio and, like many amateurs, he loved to tinker, especially with VHF gear. Most recently, and in order to keep in touch with his nephew in UK, he was working to get active on packet radio but sadly Col passed away before matters were complete.

To Moira, Col's wife, and family, the Society offers its deepest sympathy. He will be sadly missed by all his friends in Amateur Radio.

ar

# AWARDS

John Kelleher VK3DP

Federal Awards Officer

4 Brook Crescent, Box Hill South, Vic 3128 (03) 9889 8393

Going after Awards is one of the many pursuits of Radio Amateurs. Awards are the result of engaging in one or more pursuits of radio activity, usually involving making a number of contacts of a particular type. The award may be in the form of a certificate, plaque or trophy. Which brings me to a situation which occurred in an earlier edition of our Magazine. No award can be earned if the original information is incorrect. In this particular case (mea culpa) it was I who published the incorrect address of the NZART Awards Manager.

Bill, VK1WN saw this infringement of the rules, and supplied me with the correct address for ZL Awards. It is :-NZART Awards Manager, PO Box 1733 Christchurch, New Zealand.

Interested parties may join the Awards Net on 3.677 MHz every night from 8 pm NZ local time. Further information can be accessed on the web site :-

<http://www.nzart.org.nz/nzart/awards/awards.html>

There will not be a July edition of the Awards column due to my hospitalization. Some interested parties may submit copy to Editor, if they see fit. The above situation occurred because I had not received a current copy of Break-In, the annual magazine of the NZART.

I must thank Peter, VK3EBP for his continued support, in supplying me with accurate information on the DX situation which is published under "Where's DX."

## Andorra. - Andorra 5 bands Award.

Requires contact with five different Andorran stations since January 1, 1989. These may have been on any of the bands 3.5, 7, 14.21 and 28 MHz, and may be all CW, all SSB, or mixed. Note: only stations using the C31 prefix count. No cost indicated, but return postage is suggested. Send the 5 QSL's to :-

URA, PO Box 150, Andorra La Vella, Andorra.

## Balaeric Islands - Diplome Cuitat de Palma.

Sponsored by La Union de Radioaficionados de Palma U.R.P. who make this award available for contacting EA6/EC6 stations after Jan 1 1994.

HF : contact 10 EA6/EC6 stations of the Palma City of Mallorca, members of U.R.P.

VHF contact 10 of the above.

GCR list and a fee of US\$8.00 or equivalent in IRC's to :-

Union Radioaficionados de Palma, Apdo 034 CP 07080, Palma de Mallorca, Islas Baleares, Spain.

## Brazil - All Portugese Language Countries Award.

Requires proof of contacts with 10 countries of the world which customarily use the Portugese language. SWL OK. All bands and modes. No time limitations. All contacts must be made from the same country. Land stations only. Endorsement stickers for all 13 eligible countries. GCR list and fee of US\$2.00 or 3 IRC's (endorsement US\$1.00 or 1 IRC). The certificate is in two colours, 310mm x 215mm. Apply to :- Northeast Brazil DX/ SWL Group, C/o PS7AB Ronaldo B. Reis, PO Box 2021 59094-970, Natal RN, Brazil.

Eligible countries are :- C9 Mozambique, CT3 Madeira Is, D2 Angola, J5 Guinea-Bissau, PY0F Fernando de Noronha, PY0T Trindade & Martin Vaz, XX9 Macao, CT Portugal, CU Azores Is, D4 Cape Verde Is, PY Brazil, PY0S St. Peter & Paul Rocks, S9 Sao Thome & Principe.

## Canada - Radio Amateurs of Canada Series.

General requirements : GCR accepted. Sponsor may request random cards for checking. Contacts after July 1 1977. Apply to :- Russ A Wilson VE6VK, 1235 Richland Road NE, Calgary, Alberta, Canada T2E 5MT

## Canadaward

Confirm contact in each of the 12 Canadian Provinces and Territories. All QSO's must be on one band only. Separate awards for each band or mode. Fee is US\$5.00 for stations outside Canada.

## 5-Band Canadaward.

A special engraved plaque available for stations who confirm contacts with the 12 provinces and territories on 5 amateur bands. Fee is US\$40.00 for stations outside Canada. List of Canadian Provinces and Territories is as follows :- VO1- VO2 Newfoundland - Labrador. VE1 Nova Scotia, VE1-VE9 New Brunswick, VY2-VE1 Prince Edward Island, VE2 Quebec, VE3 Ontario, VE4 Manitoba, VE5 Saskatchewan, VE6 Alberta, VE7 British Columbia, VE8 Northwest Territory, VY1 Yukon Territory

All bands may be used. Each distinct satellite mode will count as a separate band. Note : VO2 Labrador is a part of the Province of Newfoundland and as such counts for Newfoundland. Some Canadian stations may be using different prefixes. Applicants should note that the award is based on the Province or territory of residence of the QSL card, not the prefix.

## Chile - Radio Club of Chile Series

General requirements : GCR list, but must be certified by recognised club or national radio organisation/IARU member society. Fee is 8 IRC's per award for DX stations. Apply to :- Awards Manager, Radio Club of Chile, Casilla 13630, Santiago de Chile, Chile SA.

## Worked All Chile - (WACE)

Contact CE stations in each of the 10 call areas. NO SWL. All contacts from the same country.

## Republic of Chile Award

Contact any 20 Chilean stations from any call areas so as to form the phrase ; **REPUBLICA DE CHILE** with the last letter of their call sign. GCR list should be composed vertically down to spell the phrase.

## Croatia - Diploma Zagreb

Contact stations in Zagreb since Sept 22 1957. YU/9A need 25, other Europeans 10 and all others 5. All bands and modes are acceptable. GCR list and fee of 5 IRC's to :- Radio Club Zagreb, Trg zrtava fašizma 14, Zagreb, Croatia.

## Where's DX ?

The Kermadec DX Association wishes to advise that as from Apr 25 2000, all direct QSL cards for both ZL8RI and ZL9CI should be addressed to :- Ken Holdom ZL4HU (also ZL2HU), Kermadec DX Association, PO Box 7, Clyde, Central Otago, New Zealand.

This is now the **ONLY** address to send cards for the above two Expeditions. Due to NZ postal system rules, we cannot

guarantee any reply to cards sent to any previous address. Our Association would appreciate your assistance in arranging to have our new address published in your National or International amateur radio magazines, local Club newsletters, national packet clusters, and BBS's etc.;

**East Timor** QSL's for Jose 4W6EB should go to CT1EEB, Jose Emanuel Ribeiro de Sa, PO Box 79, P-3860, Estarreja, Portugal or via the REP Bureau.

**4W6MM** - Cards for Thor can now be sent to :- Thorvaldur Stefansson, PO Box 3699, Darwin, NT 0801

**Lesotho** - A group of German operators are planning a Dxpediton between July 3 and July 22, using call sign 7P8AA. QSL via DL7VRO

**Chesterfield Islands** - This new entity has been added to the ARRL DXCC list wef March 23 2000.

**Angola D2** - Fernando EA4BB is QRV as D2BB for about one year. QSL via W3HNK.

**Reunion Island** - Matthieu F5PED is now active as FR5DC. QSL via home call.

**Chad TT** - Jean, F5BAR is active as TT8JLB until July, QSL via home call.

**Jan Mayen JX** - Per, LA7DFA will be active as JX7DFA for up to 12 months. QSL via home call.

**Bhutan A5** - Jim, VK9NS is presently active as A52JS from Thimphu. All QSL's should be directed to HIDXA, PO Box 90, Norfolk Island NI 2899.

**HM0DX Mystery !!** According to Toshi, JA1ELY beam tracking on this station have revealed that signals emanated from the JA7 district. Operator spoke English in a broad Tohoku (JA7 district) accent.

**Kingman Reef** - Palmyra Atoll. First notice of a Dxpediton to these remote entities probably programmed for October 2000. Good hunting, de John, VK3DP

ar

# DX NOTES

*continued from page 27*

there has been some confusion regarding the licence issue and the official status of the station which has already made 35000 QSOs from 6m - 40m using CW, SSB and RTTY. Attempts are being made to clarify the situation with the authorities so that the operation can be officially recognised. (Thanks to Bernie, W3UR and the DailyDX.)

There has been a bit of 'skulduggery' going on in relation to the upcoming 3B6RF, Agalega Dxpediton. Joe Meier, HB9AJW, wants to let us know that the recent comments on the packet network regarding the QSL arrangements for the planned Dxpediton are 'incorrect'. He says someone (using Joe's callsign) has issued the info with the intent of

sabotaging the event. For more information on the operation, and the real QSL info, visit the official web page at [www.agalega2000.ch](http://www.agalega2000.ch)

Tuji Yonten, A51TY, and Jim Smith (VK9NS), A52JS, began amateur operations from Bhutan on April 27th at 12:01 UTC. Yonten began the operation by conducting the first QSOs. The initial QSO was on CW with Pavel, RW0JR on 20m and the first SSB QSO was with Kirsti, VK9NL also on 20m. [Thanks to OPDX] Maybe I'm showing my personal bias here, but it's great to hear that CW was the mode used for the first contact from A5, the Kingdom Bhutan.

## Round up

There has been some interesting DX on the bands recently and hopefully there

will be more on the way. Winter is approaching in the Southern Hemisphere and the longer hours of, darkness will hopefully bring better, propagation paths. I hope your summer months were spent overhauling those antennas, who was it that said "there are no good joints, only failed ones and failing ones"? It would be a pity to miss some rare DX due to a broken element, or a faulty joint in the coax feeder.

## Sources

Thanks go again to the following: *The Daily DX* by Bernie, W3UR, The NODXA Rag, ARDX, OPDX, 425DXN.

ar

# CONTESTS

Ian Godell VK3DID,

57 Nepean Highway, Aspendale, 3195

Phone: 0408-123-557 Email: contests@wla.org.au

## Contest Calendar June - August 2000

Jun 3/4	IARU Region 1 Field Day (CW)	
Jun 10	Portugal Day Contest (SSB)	
Jun 10	QRP Day Contest (CW)	(Apr 00)
Jun 10	Asia-Pacific Sprint (SSB)	(Jan 00)
Jun 10/11	TOEC WW Grid Contest (SSB)	
Jun 10/11	ANARTS RTTY Contest	(May 00)
Jun 10/11	South American WW Contest (CW)	
Jun 17	Merv Stinson Memorial Sprint (CW/SSB)	(Jun 00)
Jun 17/18	VK Novice Contest (CW/Phone)	(May 00)
Jun 17/18	All Asia DX Contest (CW)	
Jun 24/25	ARRL Field Day	
Jun 24/25	Marconi Memorial Contest (CW)	(May 00)
Jul 1	Canada Day Contest (CW/Phone)	(Jun 00)
Jul 1	Jack Files Contest (CW)	(May 00)
Jul 1	Australasian Sprint (CW)	(Jun 00)
Jul 1	NZART Memorial Contest (CW/Phone)	(Jun 00)
Jul 8	Australasian Sprint (SSB)	(Jun 00)
Jul 8	Jack Files Contest (SSB)	(May 00)
Jul 8/9	IARU HF World Championship (CW/SSB)	(Jun 00)
Jul 15	Pacific 160 Metres Contest	(May 00)
Jul 15/16	SEANET CW Contest	(Jun 00)
Jul 15	Colombian Independence Contest (CW/SSB/RTTY)	(Jun 00)
Jul 22	Russian RTTY WW Contest	
Jul 22/23	RSGB IOTA Contest (CW/SSB)	(Jun 00)
Jul 29	Waitakere Sprint (Phone)	(Jun 00)
Jul 29	SARS Sprint Contest (SSB)	(Jun 00)
Aug 5	YO DX Contest (CW/SSB)	
Aug 5	SARS Sprint Contest (CW)	(Jun 00)
Aug 5	Waitakere Sprint (CW)	(Jun 00)
Aug 5/6	Worked All Europe DX Contest (CW)	
Aug 12/13	Keymen's Club of Japan Contest (CW)	
Aug 12/13	RD Contest (CW/SSB)	
Aug 19/20	SEANET SSB Contest	(Jun 00)
Aug 26/27	SCC RTTY Championship	
Aug 26/27	TOEC WW Grid Contest (CW)	

Thanks this month to ZL2BIL SARS AHARC NZART VK4YZ VK5CTY

### Greetings to all Readers.

One of my tasks as Federal Contests Co-ordinator is to keep you all informed about contest rules and results. This is the purpose of this column, of course. However, there are three sites on the Internet (for computer users) that I commend to your attention – <http://www.wia.org.au> <http://www.uq.edu.au/radiosport> <http://www.vk2nnn.com/cgi-bin/calendars/vkcontest/calendar.pl>

The first of these is the WIA Federal Web Site. Here you may read these notes and see details of contests. The second is the page of our well-known and very able contestant John VK4EMM. John has details of contests as well as very pertinent comments relating to all aspects of contesting.

The third is an excellent Page by Allan VK2CA/NNN in Broken Hill. Allan has a variety of things associated with this Page, including a Calendar. Allan has given me permission to keep this Calendar up to date with information about local

contests and I thank him for this. (The address is a bit long, but it is well worth a visit.) I shall devote it to VK and ZL area contests specifically.

Please have a look at these sites. Even if you do not have a computer or access to the Internet, try the local Library. I worked that way for two years and it doesn't cost anything!

### WRTC2000

In July two Australian contestants will travel to central Europe to represent us in WRTC2000.

This is a team event held every few years and this year Australia will be represented by George

VK4XY and John VK4EMM. They will be one of 53 two-man teams competing in Slovenia, and they will have special S500XX callsigns. David VK2AYD was going over a Referee, but has decided to stay home and add VK to the list of logs received.

This is not a contest in the normally accepted sense of a yearly event, but a series of really tough mini-contests between the teams in send and copying, callsign copying in a pile-up situation, and other goodies. A real challenge, so let's wish these two men well for their journey. (Further information is available on the radiosport web page listed above.) Also, let's all support David VK2AYD in his attempts to make contacts in this contest.

Finally, WARNING N.B. ATTENTION!

Because of the Olympics, Summer Time will commence on SUNDAY, 27 AUGUST, 2000.

Please note this NOW.

73 and good contesting. Ian Godsill VK3DID E-mail: <contests@wia.org.au>

## Results Alara Contest 1999

from Christine VK5CTY

Pat VK3OZ 204	Top score overall, Top score VK YL
Top VK CW (Florence McKenzie Trophy-53 pts), Top VK3 Alara member	
Susan VK7LUV 200	Top phone score, Top VK7 Alara member
Melva VK4TP 111	Top VK4 Alara member
Alan VK7JAB 110	Top VK OM
Dave ZL I AMN 104	Top ZL OM
Celia ZL I ALK 99	Top score DX YL, Top ZL Alara member
Dot VK2DB68	Top VK2 Alara member
Christine VK5CTY 65	Top VK5 Alara member
Marilyn VK3DMS 57	CHECK LOG
Sally VK4SHE 47	
Bron VK3DYF 46	
John VK5EMI 15	
Mavis VK3KS 11	(entered CW only)

Poor response from VK4 stations— at least I know my QRP equipment is operating VK3DID/qrp

I look forward to many more contests to come. Ian McGovern

## The Merv Stinson Memorial Sprint

from Charlie Strong VK4YZ  
1000Z – 1100Z  
Sat 17 June

Purpose of the contest is to aid people in attaining proficiency in procedures, fine tuning of equipment and introducing people to the sport of contesting. Object of the contest is to contact (or log QSOs if an SWL) as many stations as possible in the one-hour period without duplication using SSB or CW. Any contact between Australia, New Zealand, Papua New Guinea and surrounding countries on the 80 metre band is valid. This contest is open to all licensed amateur stations and short wave listeners. Groups are allowed but must only use one callsign and transmitter.

The contest period is from 1000Z to 1100Z on Saturday, 17 June, 2000. This is the same weekend as the VK Novice Contest, therefore extracts from Novice Contest Logs between 1000Z and

1100Z will be accepted as logs for the Merv Stinson Memorial Sprint. Exchange RS(T) and serial number. Logs must show for each contact the time UTC, callsign (or callsigns for SWL) contacted, exchange sent and received. A log must have a summary sheet containing name, address, callsign, date of contest, total number of points claimed and a statement that the operator/s abided by the rules and spirit of the contest. Any comments should also be included. Send logs to: Contest Manager, Redcliffe & Districts Radio Club, PO Box 20 Woody Point, Qld 4019 by Friday 7 July, 2000.

The Contest Manager's decision is final and can disqualify any entry which is in violation of the rules and spirit of the contest or has an excessive number of duplicate contacts claimed as valid contacts.

Certificates will be awarded to the highest score over-all and in each of the Australian call areas and to the highest scores in New Zealand, Papua New Guinea and all other countries combined for both SWL and station logs.

## Australasian Sprints 2000

from David Box VK5OV, Contest Manager  
1100 - 1159 UTC

CW: Sat, 1 July, 2000

SSB: Sat, 8 July, 2000

The Adelaide Hills Amateur Radio Society Inc. is pleased to announce that the fifteenth series of the annual Australasian Sprints. Both of these contests are open to all appropriately licensed amateurs in VK, ZL and P2 call areas. A section is also provided for SWLs.

continued on page 40

## Results Jack Files Memorial Contest 1999

from Trent VK4TI, Contest Manager

The Object was for Amateurs to work as many VK4 cities, towns and shires as possible (s/vl to hear and log), to encourage portable/mobile activity from the less populated VK4 shires and towns, and to serve as a warm up for the RD contest.

### Sections

#### a) Single operator home;

Call	Shires	Prefixes	QSOs	Total
VK4EMM	1	25	120	3000(CW)
VK4JAE/7	5	7	91	1092
VK3DID	2	11	67	871(CW)
VK3DID	4	11	58	870
VK2LEE	9	6	41	615
VK7LUV	1	5	11	66

#### b) Club fixed;

Call	Shires	Prefixes	QSO	Total
VK4BAR	15	12	156	4212

#### c) Short wave listeners;

Call	Shires	Prefixes	QSO	Total
Ian McGovern	6	5	81	891

Activity was down apparently, however checking of the logs has shown that activity was fine, log submission was what was down. TO THOSE WHO SUBMITTED LOGS THANK YOU FOR YOUR SUPPORT.

### Comments from the logs:

A better representation from vk4 but conditions to Melbourne not all that good VK3DID

My new callsign should be more effective VK7JAB

Unfortunately, it is almost certain that the 2000 Sprints will be the last. The number of entries has been steadily decreasing and last year there was only a total of 18 entries for the two sections. It has got to the stage where the costs involved, and in particular the cost of the two plaques which are the trophies for the two outright winners, together with the amount of time and effort required, can not be justified. It is a pity, but I believe that other contests are experiencing similar problems, so perhaps contests are becoming a thing of the past.

**Object:** to make (and SWLs to hear and log) as many contacts as possible, without duplication, during an hour of operation on a single band. Any contact with a VK, ZL or P2 station on 80 metres during the contest period can be counted, but a station may be claimed only once.

**Eligibility:** all licensed amateurs, or groups of amateurs using a single call sign, e.g. club stations, anywhere in the VK, ZL and P2 call areas.

**Frequencies:** CW — 3.500 to 3.700 MHz may be used.

**PHONE** — 3.535 to 3.700 MHz may be used.

**Call:** CQ Sprint CQ Test or CQ Contest.

**Exchange:** three-digit serial number which may start at any number between 001 and 999, but is to revert to 001 when 999 has been reached. Note that RS(T) is optional but may be required for contacts with contestants in other VK or ZL contest during the same period.

**Logs:** must show for each contact the time (UTC), callsign of station worked (both callsigns for SWLs), serial numbers exchanged. Enclose Summary Sheet showing name, date, CW or Phone, callsign, name and address of operator, total number of contacts claimed and a statement that the Operator has abided by the rules and spirit of the contest. Where multi-operators enter using a club callsign, the callsigns and names of all operators are to be included. Any special conditions such as QRP, or mobile operation should be mentioned in the statement. Any comments will be welcomed by the Sponsors..

Send logs to: AHARS, POK Box 401, Blackwood, SA 5051, Attention Contest Manager, by Friday, 11 August, with envelope endorsed SW. Phone or SWL Sprint. For 2000 the packet address is VK5OV@VK5PSG.#ADL.#SA.AUS.OC. Logs may be sent by e-mail to: <boxesdnm@lm.net.au>

**Awards:** Certificate will be awarded to the highest scorer in each VK, ZL and P2 call area for both the CW and Phone Sprints. Trophies will be awarded to the outright winners of both. A certificate will also be awarded to the highest scoring Novice Class operator in the CW Sprint only, provided that this entrant is not entitled to another award for the CW Sprint. Certificates may be awarded to other operators whose performance was, in the opinion of the Sponsors, exemplary. SWLs: Certificates will be awarded to the highest scoring listener log in the VK, ZL and P2 call areas for both the CW and Phone Sprints.

Any entry which is clearly in violation of the rules or spirit of this Contest or which contains an excessive number of claimed duplicate contacts ( this does not refer to duplicates which have

been indicated as such and are not claimed), may be disqualified. The decision of the Adelaide Hills Amateur Radio Society Inc. in respect of the interpretation of these rules, the granting of awards and disqualification will be final.

These Contests are recommended as a good Saturday evening entertainment. If you have never entered a Contest before, here is a good, friendly time to start. Join in and enjoy the fun. It might well be your last chance.

## IARU HF Championship

1200Z Sat. to 1200Z Sun 8 - 9 July !!!CKEC K!!!!

**Bands:** 160-10m (no WARC). Categories: Single Operator, CW only, phone only, mixed;

**Multi-operator single transmitter mixed mode only.** Multi-operator stations must remain on a band for at least 10 minutes at a time (exception: IARU member society HQ stations may operate simultaneously on more than one band with one transmitter on each band/mode, providing only one HQ callsign per band is used).

**Exchange:** RS(T) and ITU zone (P2=51, VK4/8=55, VK6=58 and VK1/2/3/5/7=59). HQ stations will send RS(T) and official society abbreviation.

**Score** one point for QSOs within own zone or with an HQ station; three points for QSOs with a different zone in own continent; five points for QSOs with different continents.

**Multipier** is total ITU zones plus IARU HQ stations worked on each band. Final score is total QSO points from all bands X sum of multipliers from each band. Include a dupe sheet for 500+ QSOs. Send logs postmarked by 7 August to: IARU HQ, Box 310905, Newington, CT 06131-0905, USA.

Official forms and an ITU zone/prefix/continent map can be obtained from the same address on receipt of a large SASE with two IRCs or equivalent. Certificates to the top scorers in each category, in each state, ITU zone and DXCC country. Also, stations with 250+ QSOs or 50+ multipliers will receive achievement awards.

## NZART 80m Memorial Contest

0800-1400Z Saturday 1 July

VKs are invited to join ZLs in this annual contest to commemorate amateurs lost in World War II. It is open to single operator stations on 80 m, fixed and mobile.

**Repeat Contacts:** The contest has six operating periods, each of one hour, from 0800-1400Z. A station may be contacted TWICE during each operating period (once on phone and once on CW), provided that such contacts are not consecutive.

**Exchange:** RS(T) plus serial number commencing at any number between 001 & 300 for the first contact.

**Score:** on Phone 15 points for the first QSO with a scoring area, 14 points for the second QSO with that area, descending to one point for the 15th & subsequent QSOs with that area. The same scoring system is used with CW, except that QSO points remain at five for the 11th and subsequent QSO with that scoring area. Scoring areas are ZL and VK prefixes/areas & DXCC countries. The rules for SWL entrants are similar, except that the callsigns of

the stations heard and being worked must be given and only the exchange of the station heard is required.

Send logs and summary sheets ASAP to: Memorial Contest, NZART HQ, PO Box 40525, Upper Hutt, NZ. Nominate the category entered (Open; Phone; CW; Beginner's CW; QRP; Home-made SSB), and include a points summary showing the number of QSOs & points for each VK/ZL call area worked. Certificates will be awarded to the top three scoring VKs.

## Waitakere 80m Sprint

Phone: 1000-1100Z Saturday 29 July

CW: 1000-1100Z Saturday 5 August

This 80m sprint contest is open to all ZL & VK amateurs. In fairness to other amateurs, it is requested that no linear amplifiers be used in this contest.

Categories: Single operator; Dual operators, ie any two operators holding an appropriate licence and using the same equipment and their own call signs. One will operate for the first half-hour and the other for the second half-hour. [Note: separate logs, both starting at 001.]

Call "CQ Sprint". Exchange: serial numbers commencing at 001 and incrementing by one for each contact. RS(T) is not required.

Logs must show stations worked, with serial numbers sent & received.

Attach a summary sheet and send log to: Sprint Contest Manager ZL1BVK, 14 Takapu Street, Henderson, Auckland 1208, NZ, to arrive by 1 September.

Alternatively, logs may be sent via packet, using three columns only with no commas or other delimiters, to: ZL1BVK@ZL1AB. Logs may also be sent by e-mail to: <zl1bvk@xtra.co.nz> Certificates will be awarded to the overall winner; the best score in each ZL call area and the three best VK scores.

## RSGB Islands On The Air Contest

22 - 23 July

1200Z Sat-1200Z Sun

This contest is intended to promote contacts between qualifying IOTA island groups and the rest of the world and to encourage expeditions to IOTA islands.

Sections are: IOTA Island Stations (ie those with an IOTA reference); World and SWL. You can enter as CW only, SSB only, or mixed mode. Single operator stations can enter as unlimited (no time limit), or limited (12 hours max, with off periods at least 60 minutes long and marked in the log).

Bands: 80 - 10 m, avoiding 3.56-3.60, 3.65-3.70, 14.06-14.125 and 14.30-14.35 MHz. Exchange: RS(T) plus serial number, plus IOTA reference number if applicable. Stations can be contacted on both Phone and CW on each band. Use the same serial numbering system for both modes.

Score: 15 points per QSO with an IOTA station (including UK); five points for stations in another DXCC country; and two points per QSO with one's own country or IOTA reference. Multiplier equals the total IOTA references per mode per band, added together.

Final score is total QSO points X total multiplier.

For each band (but not each mode), submit a separate log, multiplier list and dupe sheet. Send your log and summary sheet to: RSGB IOTA Contest, PO Box 9, Potters Bar, Herts EN6 3RH, postmarked no later than 26 August. A comprehensive range of awards is offered to the leading stations in each category, section & continent.

## Southside Amateur Radio Society Sprints 2000

SSB: Sat 29 July

CW: Sat 5 August

Chosen to coincide with the Waitakere Sprint, the object is to contact as many P2, ZL and VK stations as possible.

Bands: 10, 15 and 80 metres.

Times: 0000Z - 0200Z on 10 and 15 m; 1000 - 1100Z on 80 m.

Exchange: serial number only starting at 001. Stations may be contacted once per hourly block, provided that such contacts are not consecutive, or that at least five minutes have elapsed between contacts.

Score three points on 10 m; two points on 15 m; one point on 80 m. QSOs with VK Novice/Limited stations become multipliers.

Final score is total QSO points times total VK Novice/Limited multipliers.

Logs should show all details of date, times UTC, callsign, exchanges, points claimed. Separate logs for each mode, please.

Summary sheets should show callsign; name and address; mode; claimed scores and signed declaration.

Send logs by mail to: SARS Contest Manager, PO Box 294, Woodridge 4114, Queensland; by packet in ASCII format to: VK4WSS@VK4PKT.#BNE.QLD. AUS.OC; by e-mail to: jabba@powerup.com.au Certificates to first three place-getters in each mode and special certificate for combined modes.

## SEANET Contest

0000Z - 2400Z

CW: Sat 15 - Sun 16 July

Phone: Sat 19 - Sun 20 August

Object is for stations outside SEANET region to work as many SEANET stations as possible.

Bands: 160 - 10 metres (no WARC).

Categories: Single operator all bands; single operator single band; multi-operator single transmitter.

Exchange: RS(T) plus serial number. Score: one point for each QSO. QSOs in own SEANET country count for country credit only.

Multiplier is total number of SEANET countries X three. Final score is total multiplier X total QSO points.

Send logs by 31 October to: SEANET Contest Manager, Eshee Pazak 9M2FK, PO Box 13, 10700 Penang, Malaysia.

SEANET countries: A4/5/6/7/9 BV BY DU EP HL HS JA JD1 JY KH2 P29 S2 S79 VK VQ9 VS6 VU V8 XU XV XW XX9 YB ZK ZL ZL9 3B6/8/9 4S7 4X 8Q7 9K2 9M2/6 9N 9V

# NOVICE NOTES

Peter Parker VK3YE

12/8 Walnut Street, Carnegie, Vic 3163

Email: [parkerp@alphalink.com.au](mailto:parkerp@alphalink.com.au)

Novice Notes Online: <http://www.alphalink.com.au/~parkerp/nonline.htm>

Please note that this is Peter's correct address.

## Send Morse on your VHF rig

Everyone knows that the best way to practice Morse is to use it on the air. But how do you send Morse if you don't have a multimode HF or VHF transceiver? Well, you could hold a microphone up to a code practice oscillator, and hold the PTT down while pressing the key, but it's very clumsy, and the transmitted tone is likely to be harsh. Clearly something better is needed.

Enter the MorseBox! It lets you send quality Morse from a normal two metre or 70 centimetre FM transceiver. Just plug it in to the rig's microphone socket and you're on the air. Using just one transistor and a handful of other parts, the MorseBox can instantly be switched between Morse and speech - a handy feature for those running Morse practice sessions with readbacks. MorseBox also includes semi-break-in to automatically switch between receive and transmit when the key is pressed and a sidetone to allow monitoring of keying.

### Circuit Description

MorseBox consists of two stages. These are a tone oscillator and a transceiver control/timing circuit (Figure One).

The tone oscillator provides a pure tone to modulate the transmitter. It is turned on and off by keying the emitter circuit.

A twin-T circuit was used because it is reliable and reproducible. The output is fed to the transceiver microphone connection via a variable resistor which is adjusted to provide a sufficient audio level for the rig used.

The control and timing circuit tells the transmitter when to transmit and when to receive. Pressing the key activates the relay and causes the rig to switch to transmit. So that the transmitter does not drop out between individual dits and dahs, a large capacitor has been wired across the relay to provide a delay of several seconds. This means that the carrier is on constantly and makes for more comfortable reception. If the key hasn't been pressed for several seconds, the relay drops out and the transceiver switches to receive.

The delay time depends on the value of the capacitor and the resistance of the relay coil. Slower senders will prefer a longer delay and faster operators will want a shorter delay. The prototype had a delay of approximately three seconds, which should suffice for Novice speeds. Substituting a smaller value capacitor or lower resistance relay will lessen the delay (and vice-versa). Experimentation may be required to

produce an appropriate delay from the components at hand.

The front-panel switch allows Voice or Morse to be selected. When it is switched to voice, the MorseBox is disabled, and the hand microphone is connected straight to the transceiver. When Morse is selected the audio from the microphone is cut off and power is applied to the audio oscillator and relay circuits.

A useful feature is the sidetone or keying monitor. This allows you to monitor your own sending without needing a separate receiver. Though an IC audio amplifier and speaker could be used, this would increase the project's complexity. Instead it was decided to use a small piezo buzzer wired between the supply rail and key as sidetone. The 10k series resistor reduces the buzzer's volume and extends battery life.

### Construction and testing

House the project in a metal case. This is important to prevent the transmitted signal feeding back into the audio oscillator and distorting the tone. The case pictured is a 100x77x130mm box by K&W.

All components except for the capacitor across the key socket, switch, sockets and battery holder are mounted on a piece of unclad perforated circuit board. The parts were a tight squeeze on the 60x80mm board used in the prototype. 75x76mm boards are commercially available and would have allowed a better layout. Component leads are passed through the board and are soldered underneath. Veroboard stripboard could be used, but allows



Photo 1: Front view of MorseBox.



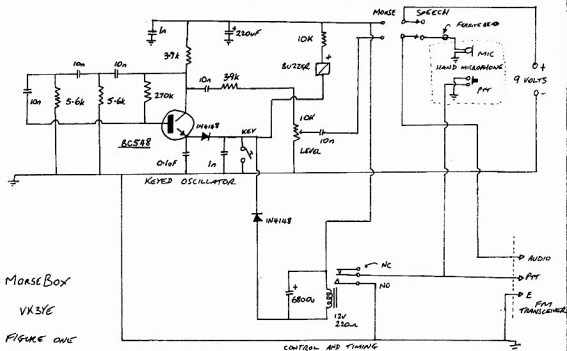


Figure 1: Schematic diagram of MorseBox.

a less flexible layout than the blank matrix board recommended. Because builders will use different component and circuit board types, no component layout diagram is provided. Instead treat this project as an opportunity to build something straight off a circuit diagram - an important amateur skill as discussed in April's *Novice Notes*.

Before commencing construction,

work out where components will be placed on the circuit board. This is particularly important for the larger parts, such as the relay, electrolytic capacitors and piezo buzzer. Allow space for a hole near each corner of the board to accommodate each spacer. Don't forget to connect the case to the supply negative line. This can be done in several places - most conveniently through the key socket.

Use a 6.5mm mono headphone socket for the key. The only other socket on the rear panel is the connection to the transceiver. This connection should have sufficient pins to suit your transceiver's microphone connections. An eight pin microphone socket and

detachable patch lead was used in the prototype, but if you're really hard-up, this can be replaced with a flying lead with plug to suit the transceiver.

Drill two holes in the front panel. One is for the Morse/Voice switch and the other for the microphone connection. No socket was used for the microphone connection as the ex-commercial microphone used was cheap enough to be sacrificed full-time for this project. However one should be used if you wish to use your transceiver's normal microphone on the MorseBox. Don't forget the ferrite bead on the connection to the hand microphone - this reduces the risk of transmitted RF getting in to the audio.

Install the wiring around the Speech/Morse switch, relay contacts, the microphone and the socket that carries the connections to the transceiver. Take care as this wiring is quite complicated and it's easy to make a mistake. Trust me, you'll almost certainly get it wrong first time! Use the testing process described later to check for such faults before the MorseBox is wired to the transceiver.

The power supply used is up to the builder. Batteries were used in the prototype

*Continued on page 44*

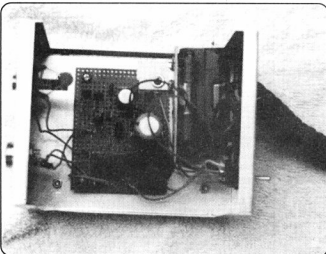


Photo 2: MorseBox with the cover off. Note the battery holder behind the front panel and the circuit board in the centre

to make the unit fully portable and eliminate the need for an external supply. A bank of six 'AA' was used in the prototype. This is a good compromise between battery life, size and cost. The small nine volt batteries could be used, but have limited capacity and may give rise to oscillator chirp near the end of their lifespan.

## Connecting MorseBox to your transceiver

To connect the MorseBox to your transceiver you will need to make a cable. Because the required connections vary between transceivers, it is not possible to provide the details here. Instead you will need to study the microphone connections as given in your transceiver's user manual or schematic diagram. Identify the microphone's basic connections (ground, microphone audio and push-to-talk) and note any other leads that may be present.

Transceiver microphones are full of traps for the unwary. Some PTT buttons do more than just key the transceiver - check for multi-section switches that have other functions such as disconnecting the microphone element when receiving. Also many microphones have up-down buttons and other functions that require extra wires. These wires should be provided for in the cable between the transceiver and the MorseBox if these extra features are to be available when the MorseBox is connected.

Be prepared for the possibility that both sides of your rig's PTT connection will be floating above earth. This will affect the way the Morse box is wired to the transceiver. More specifically, the NO terminal of the relay and the earth side of the microphone's PTT (as connected through the front panel socket) should be disconnected from earth and wired directly to the (formerly earthed) side of the PTT.

Connecting the MorseBox to the transceiver is the hardest part of the project for the newcomer. This is especially for transceivers with complicated microphone connections. Seek assistance from a more experienced amateur if in doubt - in extreme cases a wrong connection may damage the transceiver and void the warranty.

## Testing and Adjustment

Test the audio oscillator by applying power, switching to Morse and pressing

the key. Set the 10k trimmer potentiometer to about half-position. Connect a pair of high impedance headphones, a crystal earphone or an audio signal tracer to the lead carrying audio to the transceiver socket on the back panel. If all is well you'll hear an audio tone while the key is down.

If nothing is heard, a wiring fault is likely. Firstly check that the top end of the 3.9k resistor is +9 volt relative to earth. If not, look for wiring errors near the Speech/Morse switch. Wrong connections in this area could also mean the oscillator is working but audio is not getting to the transceiver socket. Other reasons for failure include the transistor and the diodes being wrongly connected.

If you've wired in the buzzer, a sound from this should also be heard when the key is pressed. If no sound, check the buzzer's polarity.

Pay attention to the relay's action. Observe it pull in as soon as the key is pressed. The relay should remain in for about three seconds after the key is released. In Morse mode the relay controls the transceiver's PTT. The three-second delay should be long enough to keep the transmitter keyed down between Morse letters. Connecting an audible continuity indicator (such as that found in many multimeters) across the earth and PTT terminals on the rear panel socket should result in a continuous tone while the key is being pressed, only dropping out when three seconds have elapsed after the key was last touched.

## Using MorseBox

The Morse Box can be left in the transceiver's microphone lead at all times. The 'speech' setting allows normal voice operation, while the Morse setting allows Morse to be sent when the key is pressed.

The MorseBox has

been set up for semi-break in operation with automatic switching from transmit to receive. Operators can switch to voice at any time with the Morse/Voice switch. This is useful if doing readbacks after text has been sent.

Most people would be satisfied with using the Morse Box on a two metre repeater or simplex frequency. However crossband operation (possibly using ten metres, six metres or 70 centimetres) can assist communication. This is because receiving stations could ask for repeats or request faster sending while the other station is sending. The effect would be akin to the full-break-in enjoyed by proficient HF CW operators.

## Conclusion

A device to allow the transmission of Morse on VHF/UHF FM-only transceivers has been described. It is simple to build and provides an easy way for amateurs to practice Morse on the air. It would also be an ideal club or group project for those wishing to increase their Morse skills together.

ar

## Parts List

(DSE catalogue numbers given for convenience)

BC548 NPN transistor	1	Z1308
1N4148 diodes	2	Z3120
3.9k 1/4 watt resistor	2	R1088
5.6k 1/4 watt resistor	2	R1092
10k 1/4 watt resistor	1	R1098
270k 1/4 watt resistor	1	R1134
10k trimpot	1	R1941
1nF disc ceramic capacitor	2	R2307
10nF greencap capacitor	5	R2055
100nF greencap capacitor	1	R2100
220uF electrolytic capacitor	1	R4380
6800uF electrolytic capacitor	1	R4470 (see text)
6-9v, 220 ohm SPDT relay	1	P8008 suggested (see text)
Small piezo buzzer	1	L7020
DPDT toggle switch	1	P7656
Hand microphone with PTT	1	(see text)
8-pin microphone socket	1	P1826
8-pin microphone plug	1	P1836
Mic plug to suit transceiver	1	
6.5mm mono socket	1	P1261
6XA battery holder	1	S6116
Snap to suit battery holder	1	S6100
100x77x130mm metal case	1	H2804
75x76mm blank matrix board	1	H5310
10mm insulated spacers	4	H1861
Ferrite bead	1	R5425



Bill Magnusson VK3JT  
RMB 1627 Milawa Vic. 3678  
Email: vk3jt@amsat.org

## MIR Operations Begin Again.

After months of uncertainty during which many false alarms were put about, the MIR space station is again manned. Despite their very heavy work schedule, the new crew wasted no time in activating the amateur radio equipment. They have been contacted by voice during their recreation time and the packet system and also the SSTV systems have been

monitored at other times. While rumours still abound, nothing certain is known of the future plans for MIR so make the most of the opportunity while it exists. When the crew was announced prior to launch, it was billed as "the final expedition to MIR". Remember that the crew works to Moscow time on board MIR and their day starts at around 7am. They have been active on voice during their breakfast time and they particularly enjoy the passes over Australia when they can have a chat

without the extreme QRM they experience over many other countries.

## Oscar-WHO?

AO-10 ... UO-22 ... KO-25 ... How are satellites named, how do they get these reference numbers? Is there any convention? Does it all happen by chance? NO ... OSCAR numbers are issued by AMSAT-NA at the request of Project OSCAR, which built and launched the first Amateur Radio satellites beginning with OSCAR-1 in 1961. Project OSCAR has kept track of all satellite numbering ever since. In order to qualify for an OSCAR designation, certain specified criteria must be met, the most important of which are set forth in a document issued by the International Amateur Radio Union (IARU) entitled 'Information Paper for Perspective Owners and Operators of Satellites Intended for Operation in the Amateur Satellite Service'. Information on this document is available on the IARU Internet web site and also through a link from the AMSAT-NA web page. The IARU document is based on a similar document published earlier by AMSAT-NA. Other criteria include the need for a written request by the person or organization responsible for the satellite to be submitted to AMSAT-NA. This request must include information about the satellite such as frequencies and orbit details as well as a statement that the requirements of the IARU document have been and are being met. Thanks to AMSAT News Service for the above information. Not all amateur radio satellites request or are given an "Oscar-number" of course. Notable exceptions are the Russian "RS" series.

## The AMSAT organisation

AMSAT (Amateur Radio Satellite Corporation) is a worldwide organisation with its roots in the USA. Its origin can be traced back to 1958, just a year after the launch of Sputnik-1. Since that time AMSAT members have been involved in the design, building, launching, commissioning, upkeep and of course, the day-to-day use of amateur radio communication satellites. The parent body is AMSAT-NA (North America) and many other countries have similar special interest groups operating.

## AMSAT-Australia

Our local organisation is known as AMSAT-VK. The National Co-ordinator is Graham Ratcliff VK5AGR.

## Membership of AMSAT-Australia

AMSAT-Australia operates an open membership system. No formal application is necessary and no membership fees apply. From time to time new software, firmware and hardware is developed and distributed through AMSAT-VK channels. Write to the co-ordinator to express your interest or pop up on the HF net.

## AMSAT-Australia HF net

The AMSAT-Australia net meets formally on the second Sunday evening of the month. During the winter months in South Australia (end of March until the end of October) the net meets on 3.685 MHz +/- QRM at an official start time 1000UTC with early check-ins at 0945UTC. During the summer months when daylight saving is in operation in South Australia (end of October until end of March) the net meets on 7.068 MHz +/- QRM at an official start time of 0900UTC with early check-ins at 0845UTC. The times and frequencies have been chosen as the best compromise for an Australia-wide net taking into consideration seasonal propagation changes and the various state summer time variations. The net is open to all amateurs, beginners or experienced who have an interest in amateur radio satellites. Help and information for beginners in particular, no matter how trivial, is freely and cheerfully available on this net.

## The AMSAT Journal

An excellent bi-monthly journal is available with formal membership of AMSAT-NA. It contains details of practical projects and ranges over all aspects of amateur radio satellite operations. As of 01Jul00 the cost of AMSAT-NA annual membership will be US\$45 payable to AMSAT-NA 850 Sligo Ave, Silver Spring, MD 20910-4702 U.S.A. or you can phone, fax or email your subscription using your credit card. The phone number is 0011-1-301-589-6062, the FAX number is 0011-1-301-608-3410 and the email address is martha@amsat.org

All Communications regarding any matters mentioned above should be addressed to:

AMSAT-Australia.  
GPO Box 2141, Adelaide, SA. 5001.  
email: vk5agr@amsat.org

*continued on page 46*

## Internet Protocol Tests on Amateur Radio Satellites

NASA recently demonstrated the ability to use standard Internet protocols to communicate with an orbiting spacecraft (just like any node on the Internet). Engineers at NASA's Goddard Space Flight Centre working with the Operating Missions as Nodes on the Internet (OMNI) project, have completed the first step in extending Internet access to future spacecraft. AMSAT-NA's Ron Parise, WA4SIR, is one of the driving forces in the project. NASA has been developing this project by working with UoSAT-12, a spacecraft built by Surrey Satellite Technology Ltd. (SSTL). UoSAT-12 is also known as UO-36 by the Amateur Radio community and carries a number of imaging payloads, digital store-and-forward communications and mode L/S transponders in addition to its commercial payload. Engineers from the GSFC successfully used standard Internet PING packets to communicate with UoSAT-12 through a ground station in Surrey, England. This is the first time that a spacecraft ever had its own Internet address and was a fully compliant active

node on the worldwide web. Subsequent tests will expand on the basic network capabilities established and will demonstrate the use of standard Internet applications to support normal spacecraft operations. Automatic spacecraft clock synchronization will be demonstrated using Network Time Protocol (NTP), reliable file transfer will be demonstrated using standard File Transfer Protocol (FTP) and finally, the Simple Mail Transfer Protocol (SMTP) will be used to demonstrate automated file store-and-forward. Future tests are planned to incorporate technologies required to support full operational deployment of Internet protocols on future space missions. More information about this exciting new development is available at:

<http://www.spacedaily.com/news/internet-001.html>

Information from AMSAT News Service.

## Tiny Satellite Being Developed at Surrey

SSTL's first "nano-satellite" SNAP-1, is being constructed at the Surrey Space Centre. SNAP-1 is a highly integrated and sophisticated spacecraft weighing just 6 kg. It has advanced micro-miniature GPS

navigation, on-board computing, propulsion and attitude control technologies, all developed in the UK. It will not have any amateur radio component but it is certainly an interesting direction in commercial satellite. There have been several amateur radio satellites of the "pico-satellite" package size and it appears that Surrey believe there are commercial opportunities in this area that are worth developing.

## Next Month:

Twice-yearly update of all active amateur radio satellites, frequencies and modes; also the latest news from the shack of VK3JT, soon to be thrust into the magical world of high speed downloading (38k4 baud) from UO-36. I have been inundated with outside pre-winter work around the property here and all that has happened so far is a test of the TNC/modem at 9k6/9k6 on the current digital satellites. Tests indicate that the new SYMEK TNC works at least as well or better than the currently used and very popular PacComm Tiny2/G3RUH combination. I hope to have the 38k4 setup working and reportable by the time next month's column comes around.

ar

## A WORLD FIRST IN SIGHT AND SOUND FOR ICOM

In a world first for a handheld communications receiver, Icom has just released in Australia the IC-R3, a wide band receiver combined with a 2 inch TFT colour LCD and TV screen.

The IC-R3 offers super wide 0.5-2450 Mhz frequency coverage for AM, FM, wide FM and TV picture reception. With the IC-R3 you can capture the excitement of a sporting event like a Formula 1 Grand Prix or the Olympic Games from every camera angle, not just the image being broadcast on television. Or in the security industry, the IC-R3 could monitor every security camera position.

The IC-R3 has an array of

features like signal strength level indication, scanning, a multi-function 'joy stick' style switch, and 450 memory channels. The LCD shows information such as receiving frequencies, tuning steps and memory channel numbers plus TV reception. A Lithium-Ion battery is supplied which gives almost 2 times longer than other types of batteries. And the external DC IN terminal allows you to operate with 3.6-6.3 V DC power source,

or 12 V DC power source via the optional CP-18 Cigarette lighter cable, all day long.

This amazing unit comes with Icom's usual 2 Year Warranty and is priced at around \$1100 including the GST.

The IC-R3 captures the world of sight and sound for the first time in a handheld receiver and is available through accredited Icom Dealers, or for more information call Icom on 1800 338 915.



# AN EXPANDING WORLD

David K Minchin VK5KK

Postal: PO Box 789 Salisbury South Australia 5108

E-mail: [tecknoll@arcom.com.au](mailto:tecknoll@arcom.com.au)

Web page: <http://www.ozemail.com.au/~tecknoll>

Fax +61 8 82346396 Phone 0414 808060 (before 2130 EST please)

All times are UTC

## Mid Year ... Already!

Winter is upon us. The Autumn Equinox extended into May 2000 but has now all but died. A sizable 6 Metre April/May round up will be found further in this column!

Meanwhile, the extent and coverage of Tropo DX has dropped with the temperature. Traditionally this is when we all get busy and start building (for those who do!) equipment for the next season. Starting with this issue, you will find a new series introducing "Microwaves" to the readers. I hope the article will inspire more to aspire!

### New 47 GHz Australian Distance Record

Al Edgar VK6ZAY reports, "Over the past 12 months Al Edgar VK6ZAY and Terry Grammer VK6TRG have been assembling equipment for an attempt on the Australian 47 GHz distance record. This goal was finally realised on the 21st of April 2000 with a contact over 24.6 km extending the previous record by 6.3km. Two days later on the 23rd of April this was stretched even further to 45.3 kms with signals 'booming in' at 5-9 ++ over a 1 hour period. The current world record on 47GHz is still some way off at over 200 km."

"The contacts were made over line of sight paths near Perth, Western Australia. On both days the weather was a warm 28 degrees with relative humidity about 60%. Visibility across the 45 km from the Karnet Lookout to Wireless Hill was good without the usual haze often seen over this path. This is considered a major factor in the success of the attempt as attenuation due to water vapour can be as much as 1.5 dB per km. During one 15 minute period over the longer path the signal strength deteriorated by over 40 dB from 5-9 ++ to 4-1 and this coincided with the arrival of the afternoon sea breeze. Once the wind conditions had stabilised the signals returned to their previous strength. This phenomenon demonstrates one of the peculiarities of

radio propagation over line of sight paths at millimetre wavelengths."

"The two way SSB contacts were made possible by the use of temperature controlled crystal oscillators which provide excellent stability even though their outputs are multiplied over 450 times. On each occasion the 47 GHz contacts were preceded by an exchange on 10 GHz were precise bearings and elevations were determined to enable correct pointing of the 47 GHz antennas. This is a critical step in achieving success where 600mm dishes have a gain of over 45dB and a 3 dB beamwidth of less than one degree."

"The equipment used is the result of almost 12 months work. Both units were built by Al VK6ZAY and are practically identical. Single 600 mm dishes are used for transmit and receive in the normal way with a circulator providing the RF 'change over'. Transmit power is in the order of 1 to 2 milliwatts with no post mixer PA or receive preamplifier, this really is a 'barefoot' system. Earlier designs achieved distances of 1 km (MkI) and 6 km (MkII) and depended on surplus diodes salvaged from 5 GHz and 12 GHz equipment for the final transmit and receive mixers. The MkIII versions used in the record breaking contact contain mixer diodes and circulators from surplus 50 GHz Pasolink equipment."

"The heart of each transverter is a temperature controlled crystal oscillator operating at approximately 100 MHz feeding into an 11.75 GHz phased locked 'brick' which puts out about +15 dBm. Two high frequency mixers are used in each unit, one for transmit and local oscillator generation and the other for receive. The 11.75 GHz signal is fed into the transmit mixer diode where it is

multiplied by 4 and added to the 2m IF to provide the 47.127 GHz transmit frequency. On receive, the transmit mixer without the 2 m IF input, acts as the local oscillator and passes through the output circulator to the receive mixer diode where it mixes with the incoming receive signal to provide the 2 m IF output. Circular waveguide made from 5-mm hobby brass tubing is used to carry the signals to Cassegrain feeds, which illuminate each dish. The complete equipment is powered by two 12V Gelcells and draws about 400 mA at 24 volts." ... Al VK6ZAY

### N6XQ/VK 6 Meter QRP From Australia

Jack N6XQ reports on his Northern VK6 DX-pedition ... "An opportunity developed to take a 3 1/2 week adventure tour of Western Australia. I knew that six-meter propagation would be enhanced around the equinox and that I would be located in primo latitudes for TEP (12 - 15 degrees S.) I would love to do a little operating on the trip, but was limited to the amount of luggage I could take. A 706, switching PS and big yagi was out of the question. I elected to take an AEA 6-metre ssb/cw handheld that puts out 1 Watt. The transceiver is very sensitive but lacks a little in frequency coverage. I resurrected a 3 El yagi that I had previously constructed for kayaking trips. The yagi consisted of Radio Shack telescopic whips for the elements and chopped up 1/2 inch PVC tubing to make up the 8-ft boom. The maximum length of the tubing segments was 17 inches and took little space in my daypack. I would try to locate a temporary mast in Australia. We took the Indian-Pacific railway from Sydney to Perth to experience some of Southern Australia."

*continued on page 48*

"The first opportunity to operate was from Monkey Mia (OG64). Monkey Mia is a very nice ocean resort where dolphins come into the shallow water for petting/feeding. Dugongs (relatives of the manatee) also frequent the waters. I borrowed the telescopic pole used for cleaning the coach to use as a mast. The 3-element yagi was set up on a sandy knoll. I was pleasantly surprised with a mini pileup of JA's. I proceeded to work 28 JA's on CW and 2 on SSB. I returned later in the evening to find the band dead. I did not know it at the time, but these were the last QSO's I would make with the yagi."

"The next opportunity to operate was from Exmouth (OG78) (the Northwest cape). Here, I stood on the 2nd story balcony of the motel and used a wave whip on the HT. I had my biggest pileup and requested the JA's call by prefix. My HT would not operate split. I worked 56 JA's in the next half-hour and then was called by a 778CQ. I thought to myself "This JA can't send his prefix right or his transmitter is not initially keying right". It then sunk in that this was not a JA, but was EY8CQ in Tajikistan. What a thrill, working someplace where I have no idea where it was, but knowing it was exotic DX."

"One of the most exciting spots to operate from was El Questro Station (PH33). Stations are not radio stations, but are cattle or sheep ranches in the outback that usually range from 1000 to 10000 square miles in size. Our quarters that evening was a metal framed 2-man tent. I sat on the cot and extended the whip to hear loud Russian video and many JA's. I worked 11 JA's sitting on the cot holding the HT. In the morning light, I could see a close in mountain to the north in the direction of JA. My launch angle had to be incredibly high."

"I had another nice opening in Port Hedland (OG99) where I worked 10 JA's on SSB while pedestrian mobile walking around the motel. Superb propagation. One of the JA's was himself portable on a mountain and only running 20 Watts. My attempt to make the first intercontinental 6 metre camel mobile contact was aborted due to close in lightning strikes."

"Surprisingly, my total operating time came to only about 6 hours. Totals were (1) VK6, (2) EY8 (worked EY8CQ again while pedestrian mobile), (114) JA's. Heard KH6SX, KH6/K6MIO, HL5XF, VK6JQ." ... Thanks to Eric VK5LP for forwarding Jacks Article.

## Equinox Wrap Up For 6 Metres

Bill Webber, VK6JQ from Broome, has sent in a log summary for the Equinox up to mid April. Not long after this time, Broome was hit by a Cyclone. With some luck, most things will be getting back to normal by now. Bill VK6JQ writes "The 6 Metre European DX has come but not quite gone ... the spread of Countries is much smaller than previous Feb/March Openings to Europe. This year, between the 16<sup>th</sup> of February and the 9<sup>th</sup> of April I had 35 contacts with 12 countries on 11 days. Compared to 1991, between the 1<sup>st</sup> of March and 16<sup>th</sup> of March when I had 63 contacts with 17 countries over 9 days and in 1992, between 31<sup>st</sup> of January and 3<sup>rd</sup> of April, 62 contacts in 21 countries over 16 days."

"The most northerly contacts were into DL and PA with only ES0DX beacon being heard from further North. The most frequently heard countries were in Zone 20: 4X - 10 days, JY9 & 5B4 - 7 days. EY8, which was not included in the European contact figures, was heard on 13 days. G4CBW was the only signal heard from the UK."

"My only new 6 Metre country was EH6SA from JM19, on the Balearic Islands. Now for a 6-month wait. To see what may come from Europe next Oct/Nov" ... Bill VK6JQ. Should anyone like a copy of Bill's extensive log please contact me.

Tony, VK3CAT reports ... "Stations worked on Six Metres on Friday morning, 20.4.2000 between 2155 and 2253 UTC. XE1 BEF @5x7, K5AM @5x6, K5NA @5x5, W7CI @5x5, N5JHV @5x9, 3D2AG @5x9, XE1/SM0UO @ 5x5, XE1J @ 5x2." ... Tony VK3CAT

Steve VK5ZBK reports the following 6 Metre DX into VK5 for April "09.4.00 @ 1.40 UTC 9M2/JI1ETU 5x5, 14.4.00 @ 14.32 UTC JA7W5/KOU 5x2, 20.4.00 @ 09.54 UTC JE2RDD 5x3 PM55, @ 09.58 UTC JH2SMW KAZU 5x6 PM85, @ 10.08 UTC JA5IU JOSH1 5x5, @22.53 UTC W5OZI PAT 5x5 EM00, 21.4.00 @ 02.23 UTC YB0CBI FERRY 5x8 OI33. VK5RO then VK5AKK also worked YB0CBI, 24.4.00 @ 00.07 UTC XE1J PEPE 4x3 DK89" ... Steve VK5ZBK.

John VK4FNQ worked the following US Stations on 50 MHz on 30/4/00. At 0227 N6RMJ DM14, 0237 XE2HWB DL44, 0240 W6KGF, 0241 KF6RDO DM04, 0251 KE6FCT DM04, 0259 K6NDV DM04, 0304 K6MYC, 0309

KC6NBI, 0312 W6NHY CM87, 0315 KK6TE CM97, 0317 W6PXM DM06, 0319 K6MHZ DM06, 0327 W6FM CM95, 0335 WB6AAG CM95, 0345 KH7L, 0349 W6PPT DM04, 0356 WH6O, 0404 WH6T, 0415 WA6PEV, 0419 K6TPG DM03, 0425 WA6JRA, 0428 KJ6HI DM03, 0430 WA6MEM DM03, 0433 N6CA & 0833 7M4IBZ.

On the 8/5/2000, John VK4FNQ worked @ 0649 J1SDWPM and on 9 May 2000 0154 N6XQ, 0205 XE2EED DM12, 0214 N6KN DM02, 0230 WA6JRA and 0738 JP3VWJ.

Ray VK4BLK, Yeppoon QLD, sent in a summary log showing with some 24 Countries worked over the March to mid April 2000. Contacts to USA and Central America as well as Oceania/Asia. What may surprise some, but not others, is the high percentage of contacts that are on CW. Reviewing this compared to the last few cycles it would seem that CW has not lost any ground.

Willis Island has again been activated on both HF and 6 metres with a DX-pedition landing a few days ago. Contact details are sketchy however at least one US contacts occurred on 15/5/00 @ 00:33 with VK9V1 working K6QXY on 50.110 cw 519. VK4APG had the misfortune to break his leg while landing on the island and had to be medivaced back to Cairns. Hopefully all is mended by now.

## VK8OT Alice Springs, NT

Steve VK3OT reports the log of VK8OT (Alice Springs, NT) PG66wg FT650 8 element LP yagi. As luck would have it, Steve was in the Tanami Desert when I dropped into Alice Springs for a day in mid April!

The following is sorted by Callsign QTH Date's worked/Heard in April.

3D2AG Fiji Islands 8, 9, 19. 4W6/VK2QF East Timor 4, 4W6UN 26th. 7J6CCU Okinawa Jpn 13, 16, 21. 7J7ACU/ACV/ADB Misawa Jpn 13, 16, 21, 11, 01, 04, 23, 31, etc 9M2/JA1ETO East Malaysia 2 H. 9QSO 9M2KE East Malaysia 2 H. 9M2NK East Malaysia 2 H. 23 QSO. 9M2TO Beacon only 8, 10, 12 Heard only. 9M6SMC West Malaysia 13, 18, 21, 22 Beacon heard only 50.014 FSK OJ85ax. 9V1JA Singapore. 2 H. 21 QSO. 9V1UV Singapore 10, 21. AH2DN Guam 8 QSO. AH6TM Hawaii 16. BG7OH PR China. 4, 18. BA7JG China 25th. BV2DPT Taiwan. 1 QSO. 7 (H). BV3FG Taiwan 18, 21. BX2AB China 7, 13, 22. DS1AFU Korea 9. DS1GQS

Korea 9. DS2GTQ Korea 21. DS2SMU Korea 8. DS5IJG Korea 1,16. EY8CQ Kadiak. 8,10. EY8MM Kadiak. 13,22. 25th. FO0TH Marquesses. 8 QSO. H44PT Solomon Is. 31,4,5. HL1/JFIEFP Korea 4. HL1AEY Korea 23. HL1JV Korea 1. HL1LTC Korea 1,23 51 MHz FM. HL2AMO Korea 8. HL2WA Korea 1,3,9,18,21,22,23. HL3IUA Korea 9. HL5CL Korea 7,16,21. HL5OC Korea 16,21. HL5XF Korea 8,21. JS6SKQ Okinawa 7. JR6HI Okinawa 7.

HP3XUG/UH Panama 14 heard. KH2/7M3GON Guam 8. KH2JU Guam 31,16. KH2KU 16. KH6HI/B Hawaii 16. KH6HME/B Hawaii 16,18. KH6SR Hawaii 16 (N16E). KH6SX Hawaii 16. KH6WU Hawaii 18. KH7L Hawaii 16. KH7R Hawaii 16,17. KH8/N0JK Am Samoa 4th, N5OLS/KH8 25th. 26th heard. LU7FA, LU8MB Argentina 18th Long path 340 degrees over Pole, set new VK8 DX record 26,768 km. P29ZTL P29KFS PNG 13th Heard. PJ2/WZ8D Nant. 16th. T88JU Palau 9. T88TV 25th. 26th. T88WX Palau 5th Heard. TG9NX Guatemala. 5th. TI5BX Costa Rica V31PC Belize V73AT Marshalls 4,5,8,9,22. V73SIX Beacon 1,7. VK2QF,ZXC, 3AMZ, 3AXH, 4BRG, 4DO,5AYD, 5KK, 6JQ,7ZPB,8AH,8MS heard and worked.

VP6BR Pitcairn 7th. VR2BG Hong Kong 7. VR2IL 9,21. VR2XMT 1,4,5,7,9,18,21,22. VR2XVD9. VR2YRC 4,21 VR2YYD. VR2ZKP 26th. XE1/JA8EFY Mexico 9. XE1BEF 9 QSO, 17 QSO. XE1KK/B 17 H. XE1UN 9 Heard. XW2A Laos 22. YB0ARA/9 Indonesia 9th. YB0CBI 21. YB5QZ 10,12. YC5/PA2GFL 10,12. YV4AC Venezuela 16,17. YV5LIF 9th. ZF1 Cayman 14th heard. ZL2TPY, ZL3ADT, ZL3AAU, ZL3GS, ZL3NW, ZL3TY, ZL4AAA, ZL4WA 4,20,7th.

In total Steve reported 1100 CW QSO's with low duplicates and 500 SSB few duplicates from Alice Springs.

## ACA Spectrum Auctions And New WIA Bandplans

The 1800 MHz Spectrum Auctions in March 2000, which were led by Hutchison Telecommunications and One.Tel, resulted in more than \$1.327 billion being paid for "Spectrum". Hutchison and One.Tel have reportedly paid \$671M and \$523M respectively for large tracts of the re-allocated 1800MHz band.

The Australian Communications Authority has planned auctions for further major telecommunications spectrum licences in

2000-01. The Federal Government, in the May 2000 Budget documents, says it now expects to receive ~\$2.6 billion more from the auction of telecommunications spectrum licences than it had previously anticipated. Infact, market experts believe the government could reap anywhere between \$5 billion and \$10 billion in total!

Telecommunications companies will use the Auctioned spectrum for varied services, however most players have invested heavily to underpin their mobile phone plans in Australia. This includes introduction of 3G (Third generation) Technology Services in the not too distant future.

On a different note, thanks go to those who have responded to the Spectrum "National Park" subject, raised two issues ago. Every month I hope to bring atleast some news or developments in this area so we can act or react accordingly.

In the meantime, John VK3KWA has re-issued the 2.4 & 3.4 Ghz WIA Bandplans. "The only change to the 13 cm band plan is reallocation of 2300 - 2302 MHz.

On the 9cm band, the weak signal segment has moved from 3456 MHz to 3400 MHz and the Wideband segments have been rearranged to make the best use of the available spectrum" ... John VK3KWA. Copies of the new bandplans can be obtained from me via email or snail mail

## Microwave Primer.- Part One. The Start

With a number of Microwave bands available, it is a little difficult for the newcomer to decide "where to start". Over the next few months this series will tackle the basics on where to start and where to look to get started. Like all things, the first step is the biggest. With gained knowledge and planning this step does not have to be an insurmountable one.

The general interest in the various Microwave bands has never been higher and the availability of equipment/parts has never been better. You may be interested in weak signal working, contesting, data or video. All feedback and requests are welcome. I will be calling on a few guest writers, both locally and from overseas, to handle various sections.

For the purpose of this series, bands above 1000 MHz are classified as being "Microwave" bands. The six bands are available in the "Microwave" range those being 1.2, 2.4, 3.4, 5,7 10 & 24 GHz. Bands above this point are then part of the "millimetre" bands, e.g. 47 GHz and above.

1296 MHz is perhaps the easiest to get operational. It is an interesting band where lower frequency Tropospheric propagation is mixed with microwave type ducting. Technically, it is still an "UHF" band, however some microwave specific propagation anomalies do start to come into play like reflection, etc. An amount of ready-made equipment or kit built equipment is available. Antenna preferences are for parasitic arrays (either loop or rod yagis) for terrestrial working. Equivalent gain dishes have greater windloading and feed blockage considerations although dishes are the preferred antenna for EME applications.

Above 1296 MHz, the popularity of the various narrowband segments seems to fall in the following order, 10 GHz, 5 GHz, 2 GHz, 3 GHz and 24 GHz. This does vary around the country. Many factors including activity, parts availability and the degree of difficulty of construction and tune-up effect preferences. The degree of difficulty in both equipment assembly and tune-up is at its lowest in the lower microwave bands (2, 3 & 5 GHz). Construction becomes a little more demanding at 10 GHz and then decidedly more difficult for narrowband 24 GHz!

Equipment used on each band, in Australia is largely of the following types

10 GHz Qualcomm, DB6NT, G3WDG, Gunplexer  
5 GHz N1GHZ, DB6NT  
2 GHz WA8NLC, Equipment Supplies, G3WDG  
3 GHz WA8NLC, W1VT  
24 GHz DB6NT, Gunplexer

There are more options. As expected, parts that can be sourced with a minimum effort have largely determined popularity. The Internet has helped enormously, over the past few years, putting small groups in touch with other small groups globally.

All designs are narrowband SSB (&CW!)/FM compatible except for Gunplexers. The Gunplexer approach should not be overlooked. It is a simple but effect way to experiment with WBFM or Video/data linking. While a narrowband system might have a 20 - 35 dB circuit advantage over WBFM, there is still plenty of scope for experimentation. And all antenna hardware is transferable to narrowband systems as you advance.

Next month we will look at the lower microwave bands in more detail.



Will McGhie VK6UU  
21 Waterloo Cr Lesmurdie 6076  
will2@omen.net.au  
VK6UU@VK6BBR

# When just being an Amateur is not enough

## New Repeater Controller

A VK6 amateur, Mal VK6MT, has been developing a voice repeater controller for more than a year.

The design is based on the Stamp concept and does everything you would want in a repeater control board. The finished board is about 10cm by 8cm and can even have some of its functions remotely programmed via DTMF. A prototype board is in service in VK4 and another one is about to go into service in VK6. Rather than comment in any detail about the design, and perhaps be in error about the design and function, I will find out if Mal can put together an article for next month's Repeater Link.

## FM828 Circuit

From time to time I receive a request for the FM828 circuit. These circuits were reproduced in Amateur Radio a few years back but are in sections, each month being a part of the overall circuit. The circuits did line up and could be placed together. However I would like to scan in the actual circuit as it is in the 828 manual. This I hope to do and make it available as a JPG graphic file. The task is time consuming as the circuit is larger than an A4 scanner and requires about 4 A4 scans to copy the complete circuit. These 4 scans are then joined on the computer. I have been trying different scan resolutions (DPI) so as to maintain the information but keep the file size below floppy disk size. Even on a fast computer large graphic files can take considerable time to manipulate. I hope

to have the task completed soon and the circuit available.

## The most important event of the year

As usual there is never enough time and this month's Repeater Link is even shorter than usual. Having just returned from the Federal WIA Convention for 2000, my time is being spent on issues from the Convention. My canoe sits waiting to be taken for a paddle, with the weather this time of year perfect for such outdoor activities. However I sit at the keyboard to type in a few thoughts.

The WIA Federal Convention is the most important event for the year and takes up considerable time, if you want to at least put some value into the Convention. What little I have learnt about being a Federal Councillor is just how suitable you may or may not be to hold such a position.

For me, I come from a technical background and I hold an Amateur Licence. These qualifications don't necessarily put you in the best position to be on Federal Council. Much of what takes place at Federal Conventions is to do with finance and budgets along with meeting protocol. Anyone with limited knowledge of meeting procedure is at a disadvantage. Those with this knowledge do have a distinct advantage when it comes to the cut and thrust of debate and putting your Division's (or your own) point of view. We may all be Amateurs but in another life we come from a diverse background. This diversity is well used at Federal Council but for those of us with only an Amateur-technical background,

Federal Council can be a daunting experience. I have seen some Council members come and go in a short period of time.

## A range of skills

It may be that when your Division is looking for a Federal Councillor, and such a person comes from the numbers in your Divisional Council, the person who accepts the position may do so with some reluctance. It may be that no one is willing to take on the job and you end up with the position more or less by default. This is no criticism of the way it happens, all such organisations face this limitation on people willing to put themselves forward. But it is important to recognise that the position of Federal Councillor is an important job and takes up time that may be difficult to find. Added to this it may be thought that being an Amateur is the number one requirement, and it is, but close behind is a range of other skills that you have to pick up on the way.

## Being ready to expand your knowledge

My reason for writing about this is to say, it has been an experience for me and I have found my lack of interest in budgets, finance and meeting procedure a limitation. Just being an Amateur is often not enough. So if you are thinking about putting up your hand to be a Federal Councillor, be ready to expand your knowledge. Federal Council is not just about Amateur Radio, but a whole range of activities all needed to keep the WIA functional.

ar



# SPOTLIGHT on SWLING

Robin L. Harwood VK7RH

5 Helen Street, Newstead TAS 7250

(03) 63 44 2324 Email: rharwood@primus.com.au

## Conditions have dramatically improved over the past six months and we may already have reached the solar maximum for this cycle.

However it is not as high as 1989-90. Propagation on the higher frequencies has been very good with many low-power signals being readily heard here in Tasmania. There are so many heterodynes between 26 and 29 MHz and propagation has even been as high as 40 to 50 MHz.

The big news of late was the spectacular generator fire at Bonaire, in the Netherlands Antilles. On Easter Sunday, the generators powering the Radio Netherlands site were completely destroyed. Initially the damage was considered so severe that the site was expected to be off-air for some time, with damage estimated to be in the millions of Dutch guilders. However the station was operational within 10 days, a truly heroic effort on the part of the staff on-site.

Arrangements were speedily made to get the Radio Netherlands programmes out on short wave, as North, Central, and South America plus Australasia relied heavily on the Bonaire relay. Other broadcasters also utilise this facility and hastily arranged alternative sites. For example, the Cyprus Creek site of the Christian Science Publishing Society was used along with the Merlin facility on Antigua. Sites within the former Soviet Union were also utilised plus the Flevo site within the Netherlands.

Because Bonaire was off-air on 9795, a Chinese language broadcast was noted on the channel and later transpired it was a Russian site broadcasting on behalf of another organisation. I believe that it is a regular transmission and usually blocked by Bonaire. However it is now easily audible underneath Bonaire from when it signs on at 1020 and the power level at Bonaire may be reduced. Also there was a solar disturbance which caused severe disruption during the first week of May. Congratulations are extended to the Bonaire staff for their sterling efforts at getting the station back up again.

Early in April, the BBC World Service introduced eight different programming streams, an increase from the original 3 streams. They published a guide for the streams, which was available online and in their "On-Air" magazine, but they used local times rather than UTC, which was quite confusing. Also there were numerous technical hiccups during the first few days. Some streams were on frequencies they were not supposed to be on and others were switched during the middle of a programme. I believe that there have been numerous complaints over their introduction. The BBC has since announced that they will give the programme's times in UTC to avoid any confusion.

The service to Australasia and the Pacific, formerly on 7145 kHz between 0600 and 0800 has been dropped. Services to this region are now in our local evening hours on 9740 from 1100. I am hearing an African stream quite easily on 17830 from 0700 to 0800. It is a news programme followed by "Network Africa". I also am hearing another stream at the same time on 17640. It is quite confusing and one is never quite sure what stream you are tuned to. Personally I would prefer a single stream instead of eight.

Africa has been dominating the news lately and the only reliable source for news from this vast area has been from the outside. The BBC, Deutsche Welle and the Vatican Radio. All have quite good news bulletins on African affairs and the only consistent regional broadcaster reliably heard is Channel Africa from Johannesburg. The majority of African broadcasters are not heard very well here, including Johannesburg. They broadcast primarily in French or English plus local indigenous languages. I should also include Radio France International as they target Africa yet they are naturally in French, although they do have a 45 minutes English broadcast at 1200 for the

region. You may be fortunate enough to hear Nigeria on 7255 around their local sunrise, which is between 0630 and 0700. I have heard them very rarely but their diction is poor. I think Africa will be dominating the news for the next 12 to 18 months and it is a pity that African stations are not well heard on shortwave.

I recently came across an English language programme, having some difficulty as the diction was not clear and had to really concentrate. The station was on 12085 from 1030 to 1100, identifying as the Voice of Mongolia from Ulan Bator. It has been many years since I have heard it and attempted to confirm this but was not successful. I think they are on a shoestring, reflected in their programme production. The press review sounded as if it was "a filler" and mostly ad-libbing. They played some rather distinctive and eerie Mongolian music. I also have noted that Radio Free Asia, the American based clandestine network, is using Mongolian sites to rebroadcast into China.

I also came across a extremely weak station on 9072 at 1025, underneath a very strong teletype signal. The station was in Korean and I assumed it was one of the numerous Korean clandestine operations. I did hear some martial music very similar to that over Radio Pyongyang and checked with a known outlet on 11335 and it was an identical programme. I assume it was a spur from one of the Korean sites. Also this month, the first ever summit meeting of the two Korean leaders will take place in Pyongyang. I am certain that it will be extensively covered on shortwave.

Well that is all for June. Don't forget if you have any news, I would love to hear from you. My postal and email address are at the top of the page.

73 and good monitoring  
Robin L. Harwood VK7RH

ar

by Evan Jarman VK3ANI

34 Alandale Court, Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.

These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.

These predictions were made with the Ionospheric Prediction Service program: ASAPS version 4.

June  
2000

T Index: 139

## Legend

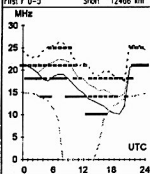
Frequency scale

UD .....  
F-MUF .....  
E-MUF .....  
QWF .....  
ALE .....  
100%-50% .....  
50%-90% .....  
90%-100% .....

Time scale

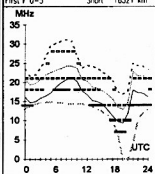
**Adelaide-Anchorage** 30

First F 0-5 Short 12466 km



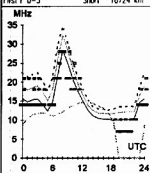
**Brisbane-Berne** 215

First F 0-5 Short 16321 km



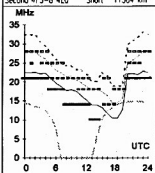
**Adelaide-Dakar** 233

First F 0-5 Short 16724 km



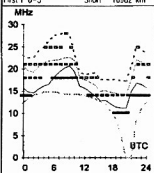
**Brisbane-Los Angeles** 59

Second 4F3-8 4E0 Short 11564 km



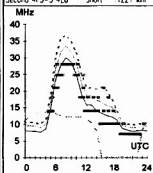
**Canberra-London** 316

First F 0-5 Short 16982 km



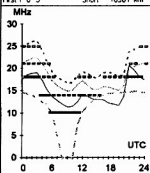
**Darwin-Capetown** 231

Second 4F3-5 4E0 Short 11221 km



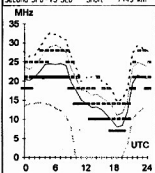
**Adelaide-Ottawa** 58

First F 0-5 Short 16901 km



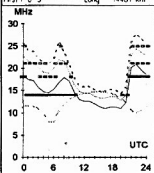
**Brisbane-Osaka** 344

Second 3F6-13 3E0 Short 7149 km



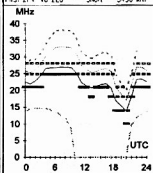
**Canberra-London** 317

First F 0-5 Long 14481 km



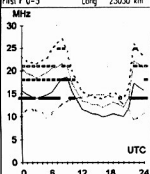
**Darwin-Tokyo** 10

First 2F4-10 2E0 Short 5436 km



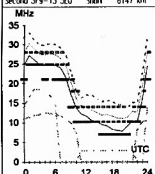
**Adelaide-Stockholm** 142

First F 0-5 Long 25030 km



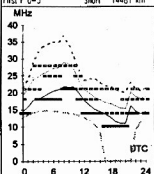
**Brisbane-Singapore** 293

Second 3F9-13 3E0 Short 6147 km



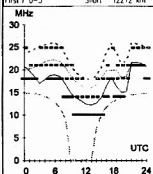
**Canberra-London** 317

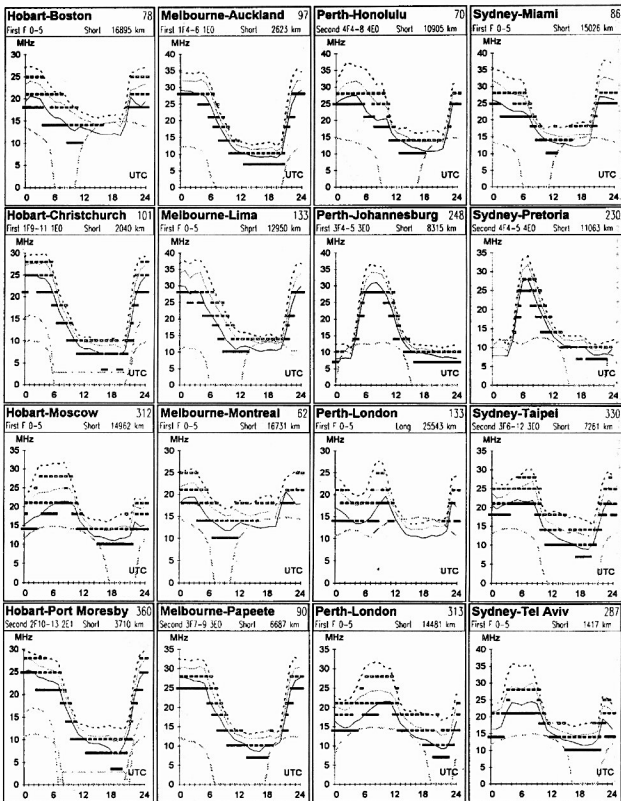
First F 0-5 Short 14481 km



**Darwin-Vancouver** 42

First F 0-5 Short 12212 km





# HAMADS

- Hamads may be submitted on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at \$25.00 for four lines (twenty words), plus \$2.25 per line (or part thereof), with a minimum charge of \$25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

**Postal:** Newsletters Unlimited, 29 Tanner Street, Richmond, 3121

**Fax:** 03 9428 4242 **E-mail:** news1@webtime.com.au

**Please only send your Hamad once**

**Please send Hamads by mail OR fax OR email (much preferred).**

**Please do not send by more than one method for any one ad or issue, it is confusing.**

## WANTED ACT

- 1) Antenna Rotator to steer two Yagis (VHF/UHF) system. 2) Transverter 144MHz/28MHz to suit TS520/TS820. Please contact Virgil VK1VI on (02) 62555677 (AH) or email at vnesqueu@ozemail.com.au or packet VK1VI@VK1BBS.

## FOR SALE NSW

- Collectors' Items: ADMY PATT No 7681 Key, Morse, Serial No P 3930, year 1939, heavy duty key, GC \$100 ono. Leeds & Northrup Standard Resistance Box, 4 decade, 0.1 — 1000 Ohms, Cat no 4776, Serial no 617505, with calibration report. \$100. Also Galbraith (NZ) paddle keyer, unused, \$25. Kokusai Mechanical Filters, 455 kcs with carrier, USB & LSB crystals, unused, offers? "Hudson" Car Radio, 6 valve, 1938 (I owned the car!) complete, less speaker & vibrator, heavy shielded box, \$50. Keith VK2AXN, (02) 9489 0304 QTHR.
- Yaesu FT107M HF Transceiver VGC 2 mics hand and desk \$450. Yaesu FV107 matches FT 107M \$120 or \$500 both. Manuals for both. VK2IGS (02) 6629 8583.
- Kenwood TS120S and PS30 power supply both in v good cond. \$380 for both. Kenwood TS50S plus automatic antenna tuning unit AT50, hardly used, \$1050. David VK2COF. Phone (02) 4861 5734.
- Yaesu FL-2100Z amplifier, new 572Bs fitted, recently serviced, \$400. VK2FGI Graham QTHR (02) 6624 2219.
- ATV homemade transmitter 426.25 MHz Motorola MHW-710-2 final. Includes spare crystal for 444.25 MHz, VGC, \$120, o.n.o. Home made antenna 426 MHz, 12 elements \$30. Peter VK2BPO (02) 9713 1831 QTHR. Email: brunone@bigfoot.com.

- INTERNET Connect from Port Macquarie to the Gold Coast from 80c per hour. Summerland Amateur Radio Club. For info: http://www.nor.com.au/community/sarc/sarc.htm. Harry VK2XIO, QTHR, cascom@nor.com.au. PO Box 293, Lismore, 2480. Ph 02 6621 6096

- BOOK: "Radiotelegraph and Radiotelephone Codes, Prowords and Abbreviations." 2nd Edition. \$16 posted Australia. 90 Pages. Q.X.Z. Codes. 97 Phonetic, 20 Morse Codes. Phillips. Myer. 10.11.12.13 Codes. Much other info. Internet - http://www.nor.com.au/community/sarc/phonetic.htm - VK2JWA, John W. Alcorn. QTHR. (02) 66215217 jalcorn@nor.com.au

- Yaesu FL-110 HF Linear Amp. 1.8 - 30MHz handswitched, 100W solidstate with ALC and PA protection, 12 - 14VDC, 1 - 15W drive (suit FT-7). Handbook and DC cables included. Good working order and condition. \$90. Ron VK2WB (02) 4232 1794.

- Yaesu FT290RII (2m SSB/CW/FM) incl 25w PA & service manual \$650. Also, Alinco DR605 (2m/70cm FM) \$400. Both excellent condition with orig boxes, manuals etc. Brett, VK2CBD. 0414 200 740

- Yaesu FT-101Z HF TXCVR S/N 9C020308. G.C. Spare PA valves. Built in fan DC-DC converter \$250.00. One light weight motor code key \$5.00. One gutter mount antenna rack with 11m antenna \$5.00. One Kraco 11m 24 channel CB S/N 805477 with crystals to convert to 10m \$100.00. VK2KRQ John Le Fevre (02) 4369 0458 12A Rickard Road Empire Bay NSW

## WANTED NSW

- Kenwood desk microphone MC-80 or MC-60A. VK2IGS, (02) 6629 8583
- Kenwood TS430S. Keith VK2AXN. Sydney. (02) 9489 0304 QTHR.

- Valve 6BN8. Possible swap for other valve if required. VK2BJU. QTHR. (02) 4841 0272. marland@goulburn.net.au

## FOR SALE VIC

- Drake Transceiver TR7 \$1800. Drake Linear Amp L75 \$750. MFJ DSP Filter \$300. Yaesu cathode ray monitor scope \$350 ono. Apply VK3LC QTHR. Phone (03) 9773 5334. All with instruction books etc.
- Drake TR7 250W transceiver with PS7 power supply, covers all hambands including WARC. receives 0-30MHz, extras 1-8kHz, 6kHz filters. Fan, slow dial drive, Shure mic, shop manual. Recently serviced by Drake expert \$1200 ono, you collect. VK3WW (03) 5433 3654
- VHF 2 metre equipment. ICOM IC-281H s/n 001702. ICOM IC-W21A Dual Band H/H s/n 02743, with mains & car chargers, & 2 antennas. Diamond F-23A antenna - 2m 5/8 wave 3 element vertical. Home brew Slim Jim antennas. MFJ-812B VHF SWR/Watt meter. Manuals. Instructions & articles. All for \$880, or separately by negotiation. David VK3DNG QTHR (03) 9859 4698, email: roddada@rvib2.vrb.org.au
- Alinco DX-70TH with manual, m/bracket and 6m remote head cable, Ex Cond. \$1000. Luke VK3EM (03) 9841 4971

## WANTED VIC

- The Australian Army Signals Museum in Melbourne would like to get two WW2 Radios for its collection. They are man pack sets, WS208 and WS128. If you can help, please contact Allan Doble VK3AMD QTHR. Phone (03) 9570 4610 any time.
- One PK232 THC. Kevin VK3MKW. Phone (03) 9836 1587 AH
- Circuit & manual for: Granger SSB Tele-transceiver, model 174-2, and Realistic DX100 General coverage rcvr. Brian VK3WYN (03) 5664 1251 QTHR
- Integrated Circuit TD62083AF, 18 pin SMD. John VK3AJL (03) 9481 6771
- Yaesu FT-901 or FT-902 HF Transceiver. Please contact Paul VK3DA. email: apaulo@vk3da.alphalink.com.au. or (03) 5983 1771.
- Dual band hand held. FT470 or FT530. Must be in good condition. Ian. BH's 0418 579422. AH 03 5711631 or email: lorlan@albury.net.au

## FOR SALE QLD

- Radiotron Designer's Handbook \$50, TR7800 2m Tx/Rx \$200, FRG7 \$150, FT107m \$500, FL2100Z and spare valves \$700, KP-2000 keyer \$60, rotators Archer \$50, Crown \$150, valve tester Taylor 45C \$120. HRO-57 metal valves, Home brew PSU \$400, Peter VK4APD QTHR. Phone (07) 3397 3751
- Linear RF Power Amplifier, ENI 3200L industrial/laboratory type; Broad-band 250 kHz-150MHz. Class A Linear. Output Power more than 100 Watts into 50 Ohm; maximum input + 13 dbm/1 Vrms. Operates into any load. Forced air cooled. Type N connectors; Front panel power meter. 240 VAC Gary VK4AR (07) 3353 1695
- 6 metre FM transceiver; Tait T499. 25 Watts, 100 channel capacity, programmed with ALL repeater, simplex & reverse repeater frequencies, mic, spkr, cradle, circuits, CH list. GC. \$110. Gary VK4AR (07) 3353 1695

• 100W Linear Amp DSE-K6313 \$30. Beams 10-15-20 TH3 JUN, 10-15-20 TET-EMTRON HB43DX, both \$80. Trailer load computers, TNCs, modems, \$30. Phone (07) 4125 1690

• Coaxial relay BNC SPDT 24v new \$40. Coaxial dual isolation relays (2 X SPST) N type 24v new \$40. 8745 Planar triodes, Eimac, new, \$50 pair. MRF245 transistors 12-6v 80W 175 MHz, \$80 pair. Philips PM2505 electronic VAR meter, \$125. AVO 8 multimeter c/w AVO case & leads. Exc cond, \$150. Tektronix dual delayed timebase B792A (600MHz mainframe) Exc cond \$500. Valve receivers Eddystone models 770R & 680X, complete clean units, working, excellent for collector/restorer, \$650. The pair, or will neg separately. Fluke 8050A DVM with manual, as new \$225. J D Bisgrove VK4KK (07) 3269 6647.

• Yaesu FT74TDX HF xcvr, 3-30MHz, all mode computer aided, manual, FM board, serial no QJ380134, excellent condition, \$550 QTHR (07) 3269 8848. email: vk4arb@powerup.com.au

• Yaesu FT990 HF all band, all mode, auto tuner \$1800. Yaesu FL-7000 HF amp all band auto tuner 1200W PEP output \$2400, or FT990 and FL7000 together \$3800. Kenwood TS-520, & Kenwood VFO-520 EX-VFO \$220. Gap Challenger vertical antenna 80m-6m \$400. Ph John VK4AJS (07) 4939 5724 or 0429 395 724. All onlo.

• Kenwood TS-50S HF mobile txcvr, ser. no. 60800848, as new, c/w headphone, Terlin mobile antenna and spring base, \$1000. Neil VK4WNT, (07) 5484 5883

## WANTED QLD

• WWII Suitcase Transceiver type 3 mark II, also type A mark III, MCR I receiver, S-phone type 13 mark IV, AWA 3BZ transmitter, and matching receivers. Coil boxes for HRO Rx. Ray VK4FH, PO Box 5263, Daisy Hill 4127. Ph (07) 3299 3819, Fax (07) 3299 3821

## FOR SALE SA

• Kenwood TS-130S with operators manual, service manual, \$460. Mobile bracket for TS-120 & TS130 \$60. Paul VK5MAP QTHR (08) 8651 2398

• Antenna Emtron TE-23M threeband mini-beam two-element with pole & guys \$200.00. Mobile whips various HF, offer. Dip-meter trio DM-801 s/n 1040047, offer. Packet radio MFJ TNC2 model MFJ-1274 s/n 02016986, manual, 2 books, cables, etc, offer. Ron VK5SD QTHR (08) 8337 6540.

• Yaesu FT 107M \$500. Yaesu FC 107 Ant tuner \$120. Hidaka Super Trap beam V5-33 \$150. Emotator SO2 CXW with 5 metre tube mast for rotator assembly \$350. All items excellent

<http://www.hamsearch.com>  
a not-for-profit site that is a search engine for hams

## ADVERTISERS INDEX

ATN Antennas .....	8
Andrews Communication Systems .....	11
Dick Smith .....	IBC, 28, 29
Icom .....	IBC
Tower Communications .....	25
WIA Call Book .....	IFC

condition VK5ALK. Phone (08) 8277 2006. Offers for complete rig sale.

## WANTED SA

• Assembly instructions for Hy-Gain TH3 3 element tn-band beam. Copying and postage costs will be reimbursed. Ted VK5ZE (08) 8255 7586 QTHR

• (1) One 100pf. per section, dual variable capacitor, 0.125 inch plate spacing. (2) Two 100pf. variable capacitors, 0.125 inch plate spacing. (3) W2 number 62 Set in reasonable condition. Ian VK5XA; PO Box 140 Milang, S.A. 5256. Phone: (08) 8537 0243

## FOR SALE WA

• Kenwood TH79 VHF/UHF dual band handheld and numerous accessories. Accessories include: 1) SMC 34 speaker/microphone with volume control; 2) 2 cases - 1 spare; 3) 3 nicad battery packs which have all recently been rebuilt; 4) dry cell case; 5) 1 x Kenwood KSC 14 drop-in charger; 6) Optional sub tone encode/decode board fitted; 7) Original accessories (inc wall mounted charger). Radio is 4 years old and has been kept in a case since new. Original packaging and handbooks included. Price \$785.00 including postage. Contact Bruce VK6CX ph 08 9310 4740 (H) or email: williams2@iinet.net.au

## MISCELLANEOUS

• FREE if you dismantle and remove TH3 Mk3 Three element Thunder Bird antenna and 30 ft tower. No longer required. Vic VK5AGX QTHR (08) 8258 0412

• If you got your licence before 1975 you are invited to join the Radio Amateurs Old Times Club. A \$2.50 joining fee plus \$8.00 for one year or \$15.00 for two years gets you two interesting Journals a year plus good fellowship. Arthur Evans VK3VQ or Allan Dobie VK3AMD can supply applications forms. Both are QTHR in any Call Book.

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road Montrose VIC 3765, tel. 03 9728 5350.

## TRADE ADS

### • AMIDON FERROMAGNETIC CORES:

For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please - 14 Boany Ave Kiama).

[www.cyberelectric.net.au/~rjandusimports](http://www.cyberelectric.net.au/~rjandusimports)  
Agencies at: Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne and Mildura; Alpha Tango Products, Perth; Haven Electronics, Nowra

• WEATHER FAX programs for IBM XT/ATs \*\*\* "RADFAXZ" \$35.00, is a high resolution short-wave weather fax, Morse and RTTY

### TRADE PRACTICES ACT

It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers and advertising agents will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

### VICTORIAN CONSUMER AFFAIRS ACT

All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

## OVER TO YOU

### Packet/Internet articles

I refer to the Over to You letter in *Amateur Radio* November 1999 titled "More Packet Please".

I have placed a page on the packet teletext concerning sending internet email to non hams via a packet station. I feel that this activity is a good piece of publicity for amateur radio and would like to record my public thanks to the stations who run mailboxes (MBO) and bulletin board systems (BBS). Particularly the Netlink stations, VK7PU, ZL1MA, HSOAC and others which I have used while marine mobile (VK5RQ, VK2AGE, VK3WZ, VK4TN etc). The unsung volunteers army! Is an article wanted on Packet/Internet communications?

Ted Podham VK2EQZ 741

Landbase Australia, Locked bag 25,

Gosford 2250

20 January 2000

**Editor's Comment.** Let me know if you think we should have a Packet or Digital Modes Column. However I would also like to know who to approach to write it.

### PLEASE BE KIND TO OUR TYPIST

**Our Hamad typist is not an expert in your field**

Please write legibly on your form, using both capitals and lower case, and use legitimate abbreviations.

This saves excessive corrections by the proofreader, and reduces the chance of errors being published, which inconveniences everyone.

receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. \*\*\* "SATFAX" \$45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. \*\*\* "MAXISAT" \$75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, and \$30.00 postage. ONLY from M. Delahunty, 42 Villiers St, New Farm QLD 4005. Ph 07 358 2785.

# OVER TO YOU

An open forum for members' comments  
Please keep letters short: brevity gets priority

## Letter from the Editor

Letters need to be short; otherwise I will have to edit them down to about 200 words. Occasionally I will include something longer if it is well written and well researched. In some cases I will publish an abstract. This has happened with this month's letters.

Colwyn VK5UE Editor.

### Membership Register.

Gordon McDonald wrote in March on how we record Memberships in AR. We will now try to show transfers separately.

### CW

I have received some letters on CW. David Pilley wrote to confirm that CW is not dead and Amateurs will keep it alive. Ian Godsil wrote asking Special event stations to indicate the modes they will be using, which a number do.

### Delivery of AR.

Gordon McDonalds second letter with Editors Note.

This month your cover sheet has a request to e-mail Newsletters Unlimited, the publishers of AR, the date you receive AR and your postcode. This information will be put to Australia Post with a 'please explain'.

## Have you tried...

DXing, microwaves, CW, high speed data, ATV, operating portable, slow scan TV, QRP, contesting, homebrewing, AM, UHF, packet radio, foxhunting, building repeaters, JOTA, 160 metres or publicising amateur radio?

**Write about it**  
and send it to

## Amateur Radio

*the magazine which covers  
more facets of  
amateur radio than any other.*

Address for articles:  
The Editor  
Amateur Radio  
34 Hawker Cres  
Elizabeth East SA 5122  
or email:  
edarmag@chariot.net.au

### Things we have to do better

12 May 2000

Hello Editor,

I haven't got AR for May yet because I am in an outlying area of Australia called Sydney but I did get some information about the contents via 2m SSB from an amateur in the more densely populated area beyond the Blue Mountains. I was surprised to learn that my "Letter to the Editor" relating to the WIA membership register and to changing divisions etc was not published in the May issue. I would like to know why not. Please oblige me with a prompt answer.

Yours quite seriously,

Gordon McDonald VK2ZAB. WIA member since 1957/58.

**Editors Note.** I have replied to Gordon about AR and asked the office to vet the new members list for re-entries, so we don't have any more bum ups.

### Re Inverters in Try This April 2000 AR

Here are a few cautionary words for those readers contemplating installing an inverter in their vehicle.

The lighter/radio fuse in my Falcon is rated at 15 A which is a typical value for this sort of vehicle. The lighter outlet might therefore supply 180 W before the fuse blows or the under dash wiring blushes. An inverter is optimistically rated 80% efficient under ideal conditions, therefore the best an inverter connected

to the lighter circuit can do is 140W.

If an inverter is used to drive a 140W appliance for 1 hr the energy used must be returned to the battery i.e. 180Whr. Assuming the battery watt hour efficiency is 80% it will need recharging with 225Whr which is 3.75 hours at 5A and 12V, that arithmetic, of course applies to any appliance which uses the vehicle battery as a primary supply whilst the vehicle is stationary for any length of time.

A 300 W inverter will supply, under ideal load conditions, about 240 W and will require an outlet fuse of 25A and vehicle wiring to match. If a 300W unit is used to its full capacity the energy required from the vehicle battery is 300 Whr per hour. The battery will then require 5. A at 12V for 6.25 hr

Inverters are not suitable for loads which have high starting currents such as refrigerators and compressors which use induction motors permanently connected to the compressors. To be safe use them only for unity power factor loads. If an inverter waveform departs significantly from sinusoidal, power factor correction will not be effective.

Lindsay Lawless VK3ANJ  
Box 760 Lakes Entrance Victoria 3909.  
17/04/2000

Address all letters to:

The Editor AR  
34 Hawker Crescent  
Elizabeth East S.A., 5112  
e-mail edarmag@chariot.net.au

# ▶ YAESU'S DONE IT AGAIN

**SCOOP  
PURCHASE  
SPECIAL**



## Yaesu FT-100 Ultra-compact HF/6m/2m/70cm Mobile

### AMAZING SCOOP PURCHASE VALUE!

Now you can enjoy the fun of operating on all bands from 160m to 70cm, either at home or in your car, and at a fantastic Yaesu price.

The new Yaesu FT-100 features HF/6m/2m/70cm transmitter coverage with 100W RF output on HF and 6m, 50W on 2m and 20W on 70cm, plus you can easily mount the detachable front panel using an optional lead (YSK-100) for more convenient mobile installations. Powerful interference fighting features such as a DSP based Bandpass filter, Notch filter and Noise reduction, together with an IF based Shift control, all aid reception quality during tough conditions. A Speech Processor and VOX facility are provided for SSB users and an internal Electronic keyer is provided for CW operation. Also included are Dual VFOs, built-in CTCSS encode, 300 memory channels, all-mode operation (SSB, CW, AM, FM, AFSK, Packet\* 1200/9600bps), 100kHz-970MHz receiver (cellular locked-out), and options for additional AM and CW IF filters.

The FT-100 is supplied with an MH-42B6J5 hand mic, DC power lead and comprehensive instructions.

D 3285

YSK-100 remote front panel kit. \$155

D 3286

**YAESU**

Included as standard:

- Digital Signal Processing on both transmit and receive
- Effective IF noise blanker
- Electronic CW keyer with 50 character message memory
- Spectrum Scope function
- Massive receiver coverage (100kHz – 970MHz, less cellular)

**\$2499** **SAVE \$376**

**2 YEAR WARRANTY**

Offers expire 30/6/2000.



***That's where you go!***

\* Requires third party TNC

1074 IBC 4 col

MORE

GREAT

GEAR

FROM

ICOM



## IC-706MKIIG

The amazing evolution of the legendary 706. Frequency coverage is expanded to the 70cm band and output power is increased for the 2m band. You get base station performance and features in a mobile rig-sized package.

## IC-718 A compact HF all band transceiver.

A superior performer with simple, straight forward operation with keypad. Optional AF DSP capabilities, including noise reduction and auto notch function. It's versatile, compact and loaded with features.

NEW



NEW



## IC-756PRO The HF & 6mm multimode professional performer.

100 watts of power, newly designed 32 bit floating DSP for noise reduction and auto notch function, and AGC loop operation for wider dynamic range. Plus digital IF filter, built-in RTTY Demodulator/Dual Peak APF, and a whole lot more.

**IC-2800H** A totally new approach to dual band mobile. Powerful performance on 2m and 70cm bands, remote control capability, and a first for mobile rigs... a multi-function colour LCD screen! All your information is right in front of you in colourful 3D-like characters and icons.



## IC-T81A A remarkably compact quad bander.

Superb clarity on the 6m, 2m, 70cm and 23cm bands. It's water resistant, with tone squelch and pocket beep functions standard, plus you can change volume and bands even quicker with the 'joy-stick' style multi-function switch.

**ICOM**  
Clearly Ahead

2 YR WARRANTY

See your nearest Icom Dealer,  
or visit our website at [www.icom.net.au](http://www.icom.net.au)